

FIG. 1

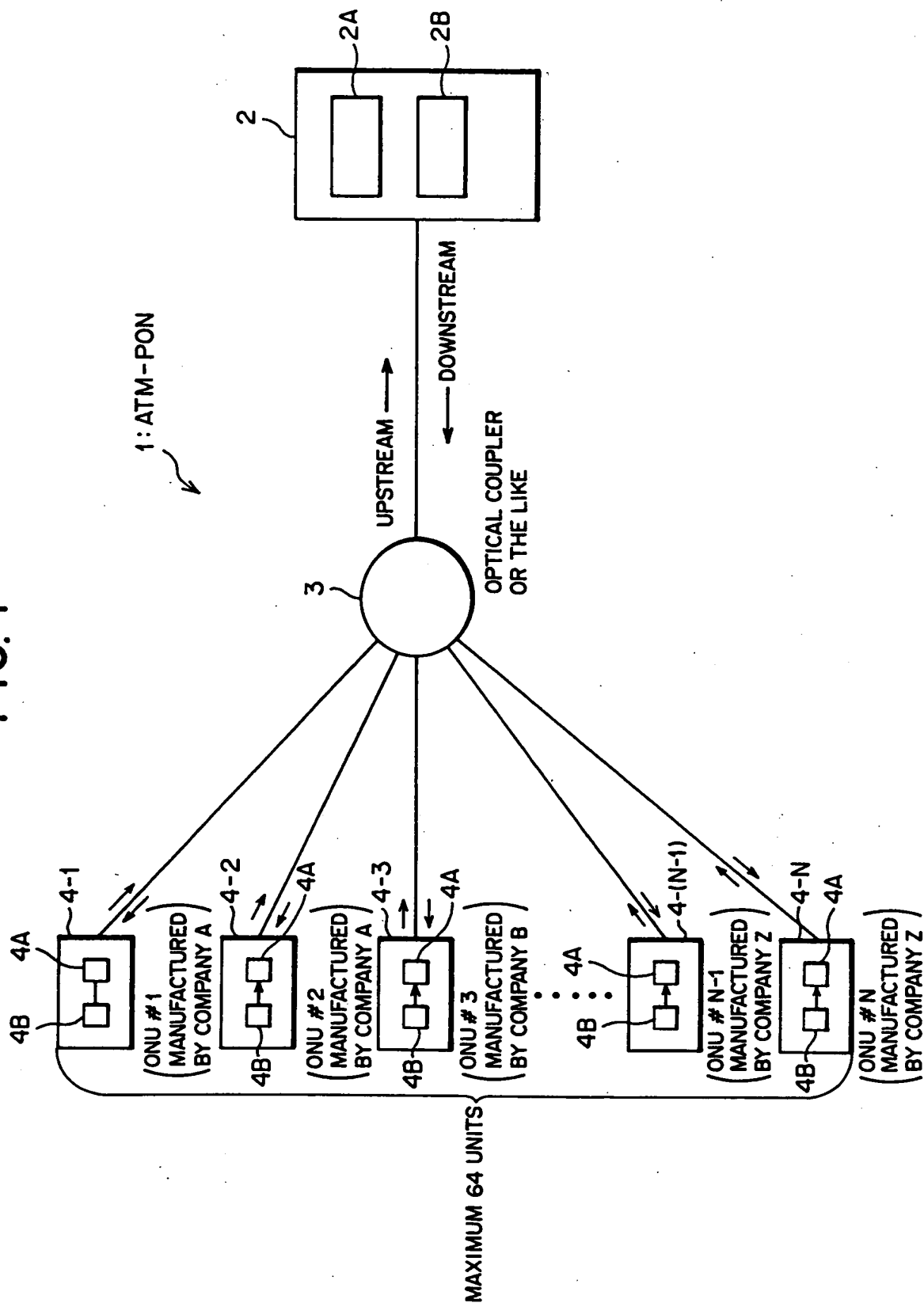


FIG. 2

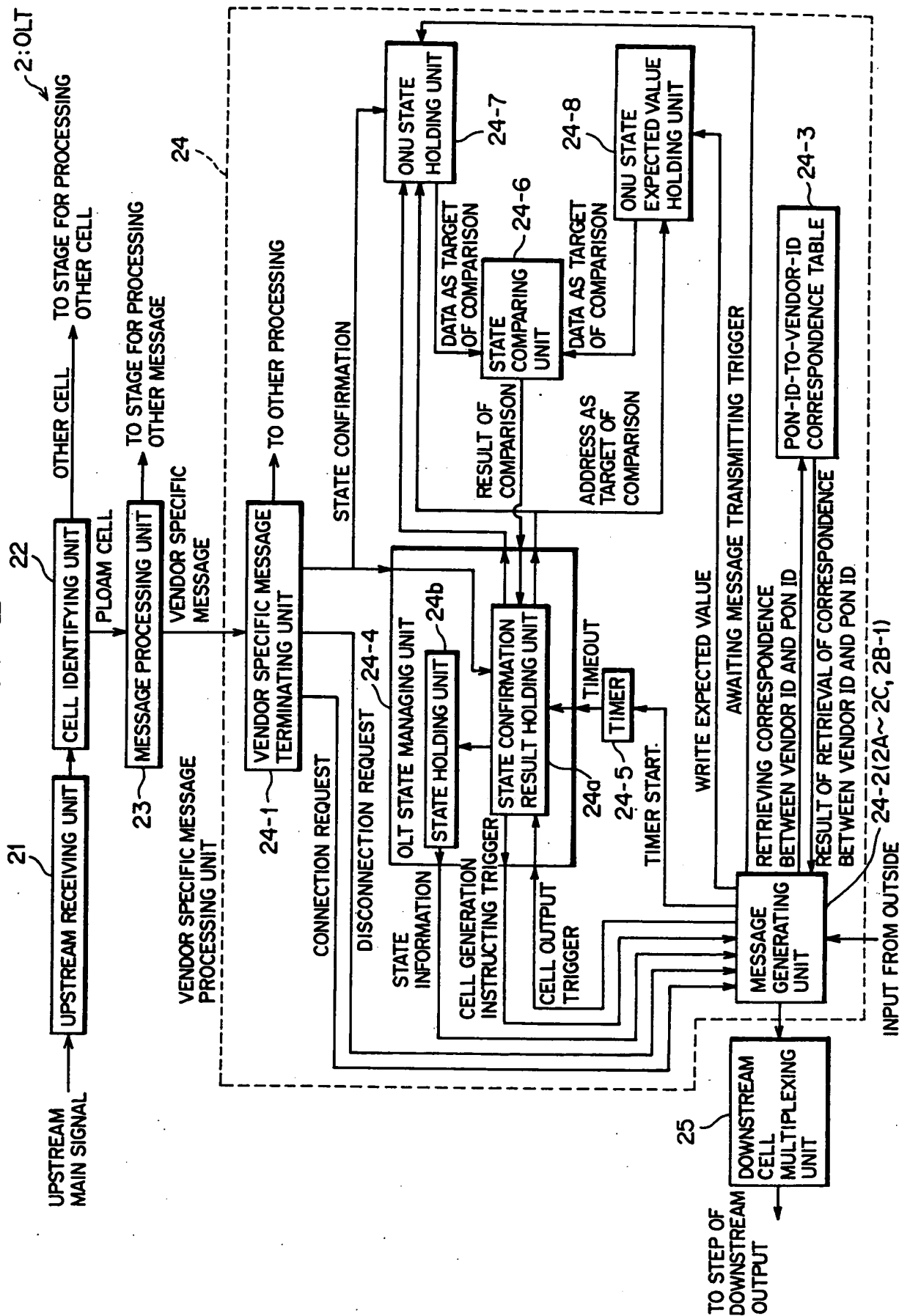


FIG. 3

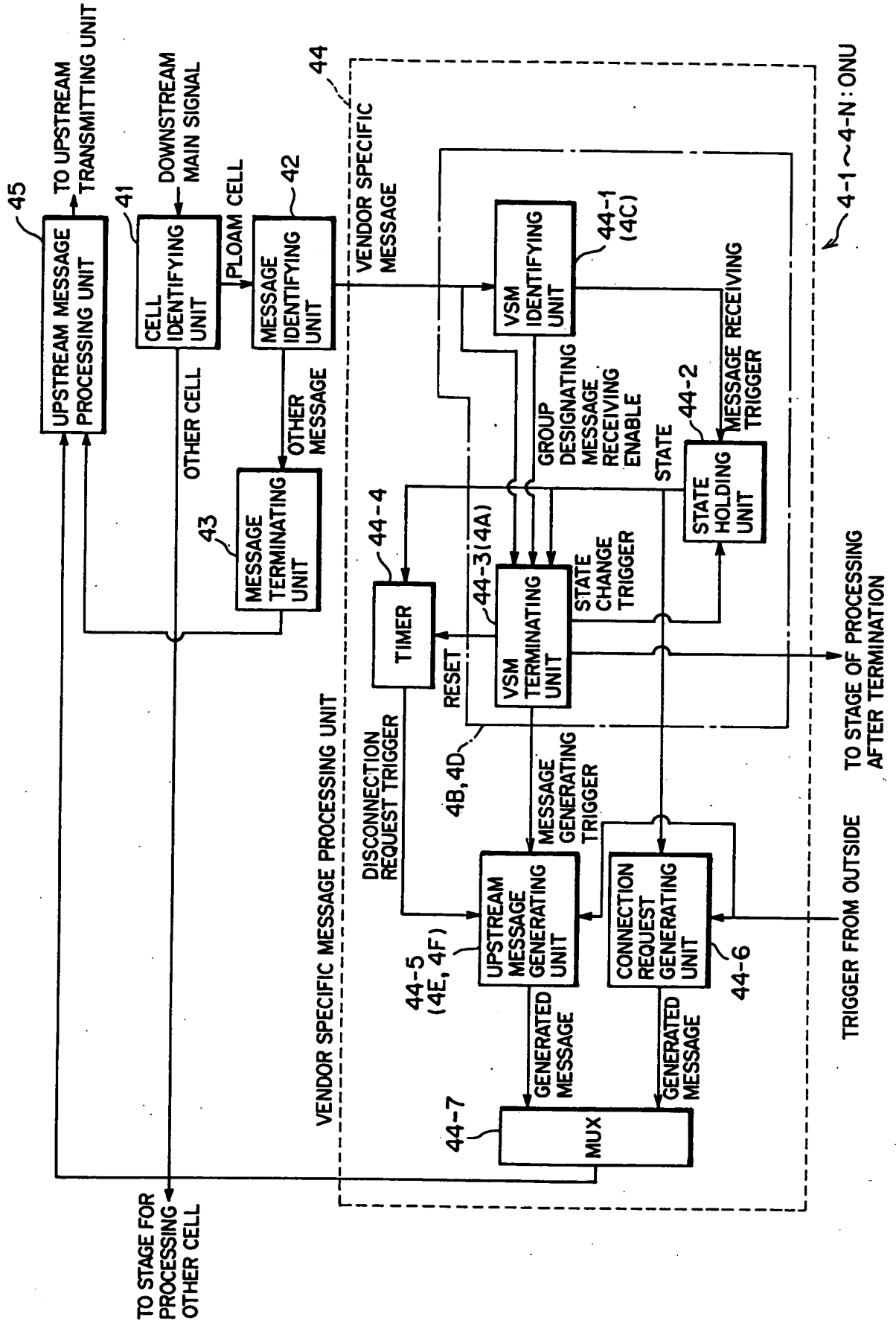


FIG. 4

PLOAM CELL HEADOR

	Octet1	Octet2	Octet3	Octet4	Octet5
(PHYSICAL LAYER) OAM CELL FOR USE IN ATM-POM	00000000	00000000	00000000	0001101	HEC=VARID CODE 01110110

FIG. 5A

BYTE	CONTENTS	
40	xxxxxxx	INDIVIDUAL PON ID OR BROADCAST TYPE PON ID = 0x40 ← 113
41	01111zzz	COMMON MESSAGE ID, E.G., 0x78 ← 112
42	0000000g	LSB IS UTILIZED AS A GROUPING FLAG ← 114
43	Vendor ID1	115
44	Vendor ID2	
45	Vendor ID3	
46	Vendor ID4	
47	Unspecified	111
48	Unspecified	
49	Unspecified	
50	Unspecified	
51	Unspecified	

FIG. 5B

9	MODE INTO WHICH CURRENT STATE IS CHANGED
0	CHANGE INTO AWAITING MODE
1	CHANGE INTO RECEIVING ALLOWABLE MODE

FIG. 6

REPLY MESSAGE

BYTE	CONTENTS	
7	xxxxxxx	INDIVIDUAL PON-ID ← 113
8	01111zzz	COMMON MESSAGE ID, E. G., 0x78 ← 112
9	00000001	SUB MESSAGE ID INDICATIVE OF VENDOR ACKNOWLEDGE ← 116
10	DATA 1	AREA OF FORTY-SECOND BYTE OF DOWNSTREAM MESSAGE
11	DATA 1	AREA OF FORTY-THIRD BYTE OF DOWNSTREAM MESSAGE
12	DATA 1	AREA OF FORTY-FOURTH BYTE OF DOWNSTREAM MESSAGE
13	DATA 1	AREA OF FORTY-FIFTH BYTE OF DOWNSTREAM MESSAGE
14	DATA 1	AREA OF FORTY-SIXTH BYTE OF DOWNSTREAM MESSAGE
15	DATA 1	AREA OF FORTY-SEVENTH BYTE OF DOWNSTREAM MESSAGE
16	DATA 1	AREA OF FORTY-EIGHTH BYTE OF DOWNSTREAM MESSAGE
17	DATA 1	AREA OF FORTY-NINTH BYTE OF DOWNSTREAM MESSAGE
18	DATA 1	AREA OF FIFTIETH BYTE OF DOWNSTREAM MESSAGE

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FIG. 7

DISCONNECT REQUEST MESSAGE

BYTE	CONTENTS	
7	xxxxxxx	INDIVIDUAL PON-ID ← 113
8	0111zzz	COMMON MESSAGE ID, E.G., 0x78 ← 112
9	0000010	SUB MESSAGE ID INDICATIVE OF DISCONNECT ← 116
10	Unspecified	DON'T CARE
11	Unspecified	DON'T CARE
12	Unspecified	DON'T CARE
13	Unspecified	DON'T CARE
14	Unspecified	DON'T CARE
15	Unspecified	DON'T CARE
16	Unspecified	DON'T CARE
17	Unspecified	DON'T CARE
18	Unspecified	DON'T CARE

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FIG. 8A

CONNECTION REQUEST MESSAGE

BYTE	CONTENTS	
7	xxxxxxx	INDIVIDUAL PON-ID 113
8	01111zzz	COMMON MESSAGE ID, E.G., 0x78 112
9	00000011	SUB MESSAGE ID INDICATIVE OF REQUEST 116
10	0000000p	p REPRESENTS ALL UNITS CONSTITUTING GROUP OR INDIVIDUAL UNIT 118
11	Unspecified	DON'T CARE
12	Unspecified	DON'T CARE
13	Unspecified	DON'T CARE
14	Unspecified	DON'T CARE
15	Unspecified	DON'T CARE
16	Unspecified	DON'T CARE
17	Unspecified	DON'T CARE
18	Unspecified	DON'T CARE

FIG. 8B

P	CONTENTS
0	REQUEST OF CONNECTION TO ALL UNITS CONSTITUTING VENDOR GROUP
1	REQUEST OF CONNECTION TO INDIVIDUAL UNIT

FIG. 9

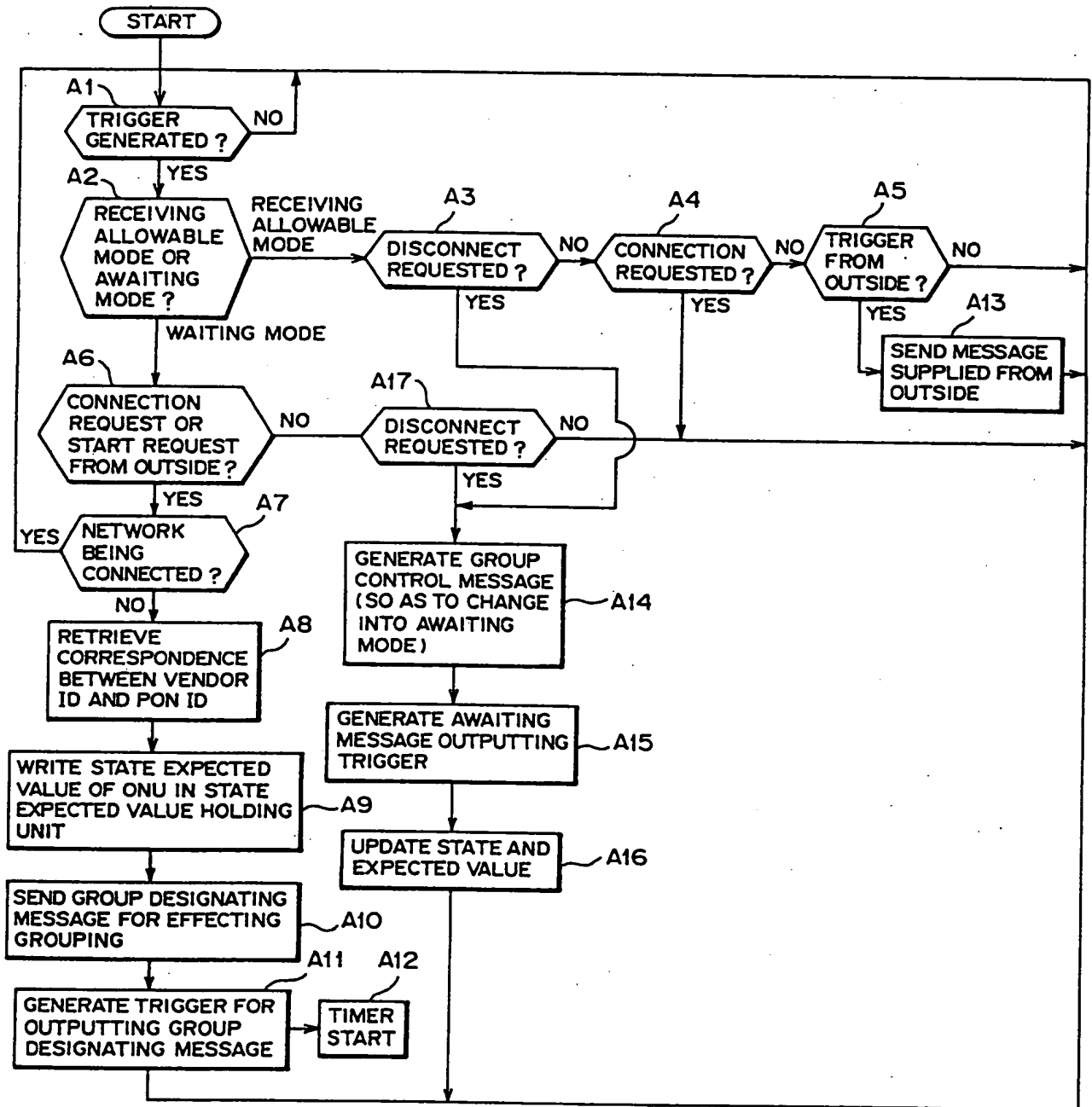


FIG. 10

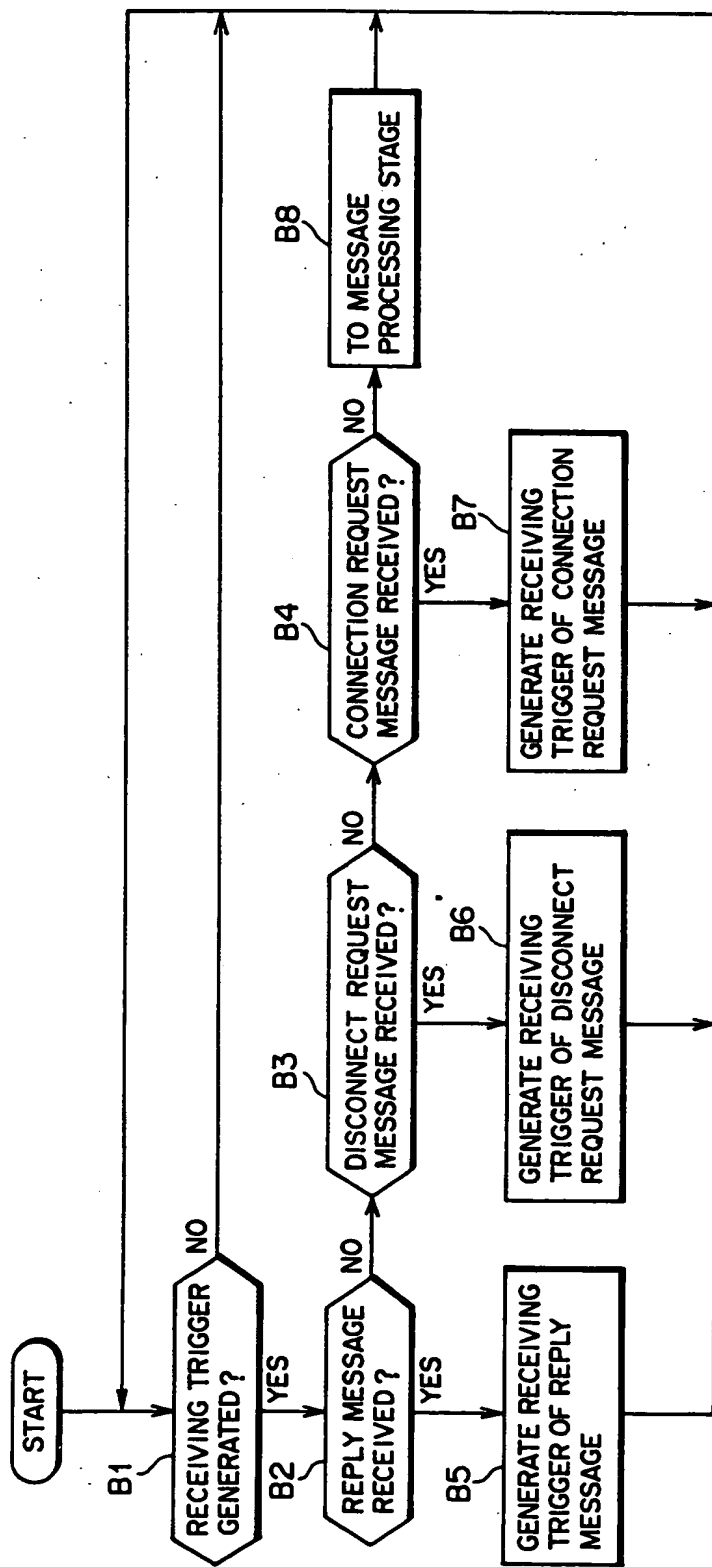
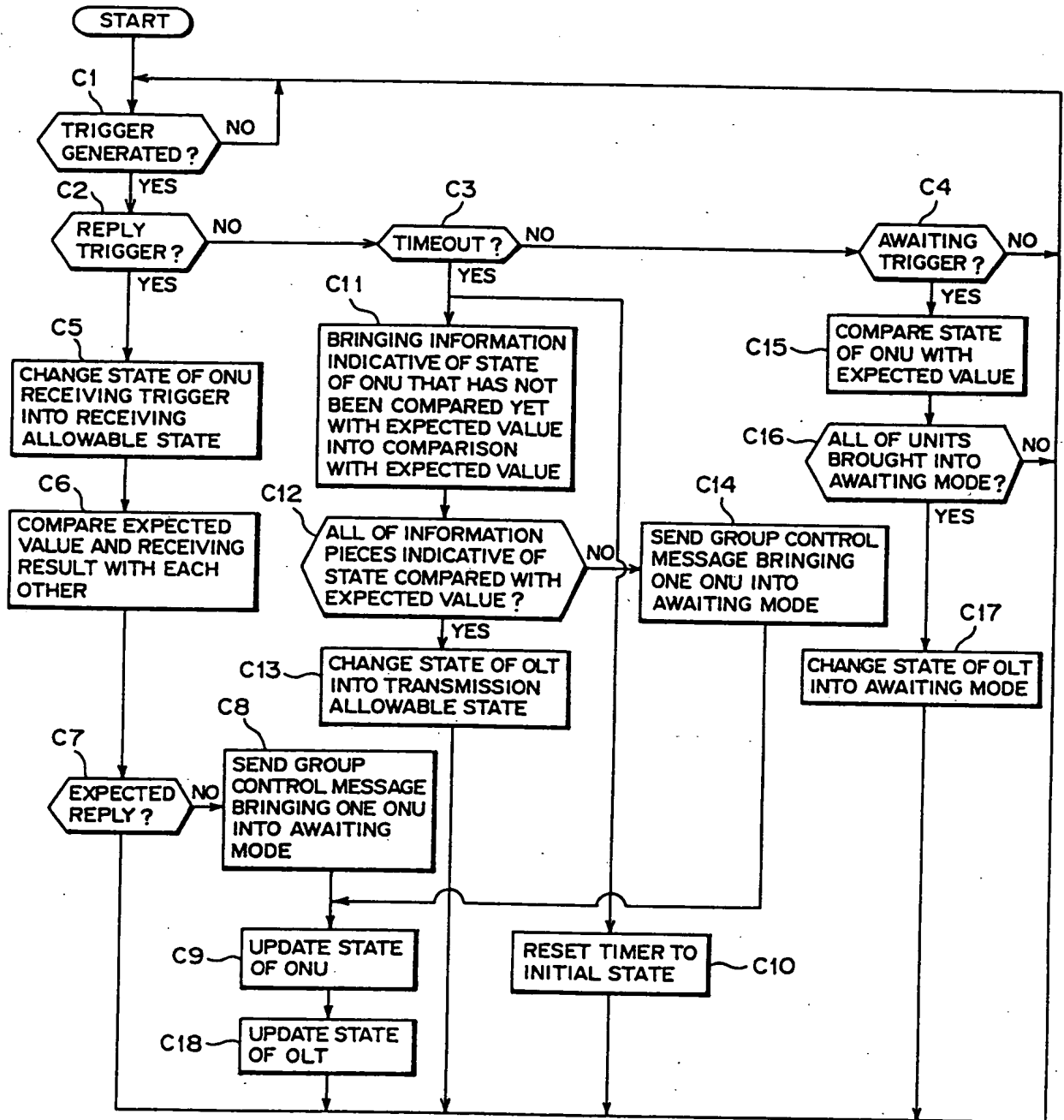


FIG. 11



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FIG. 12

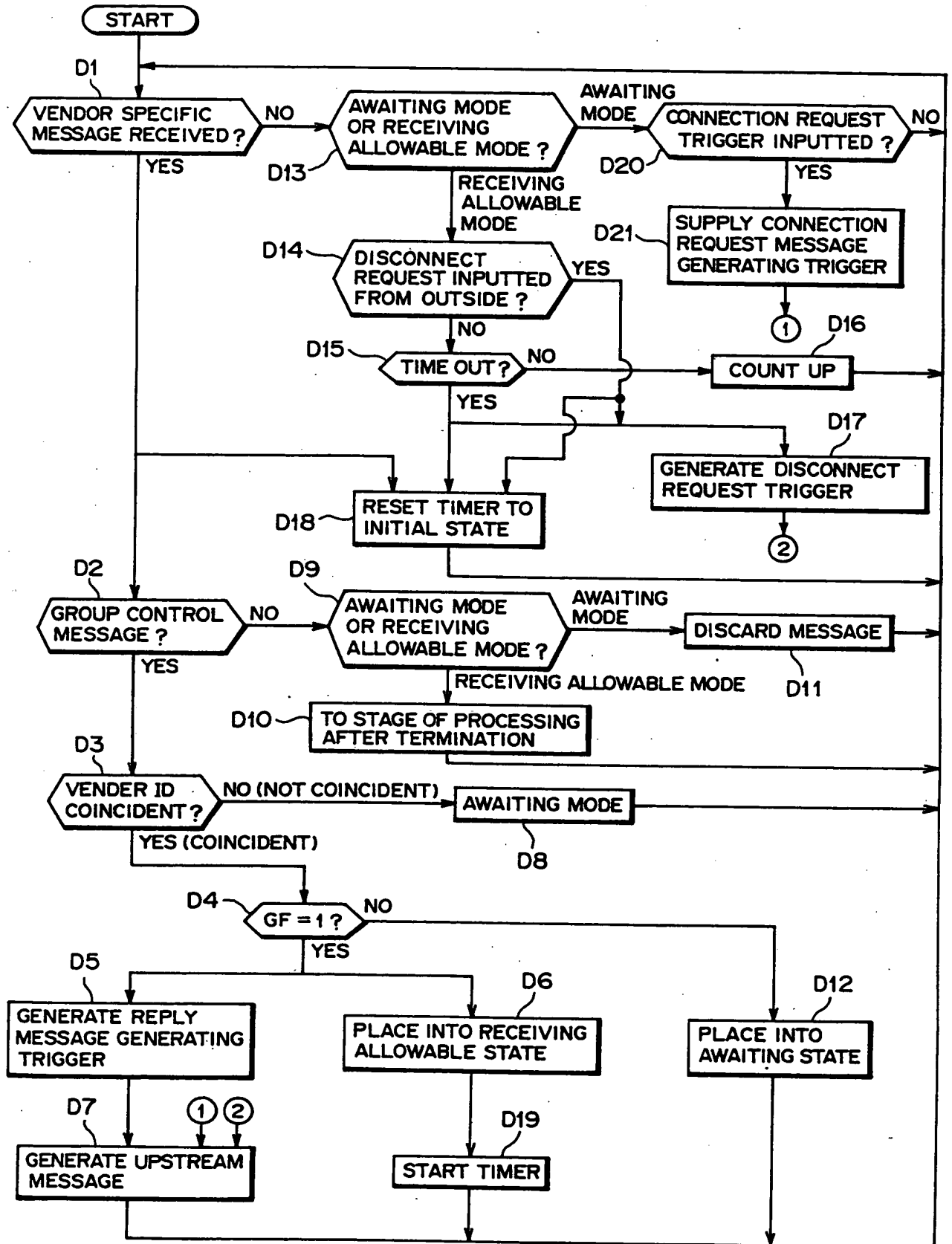
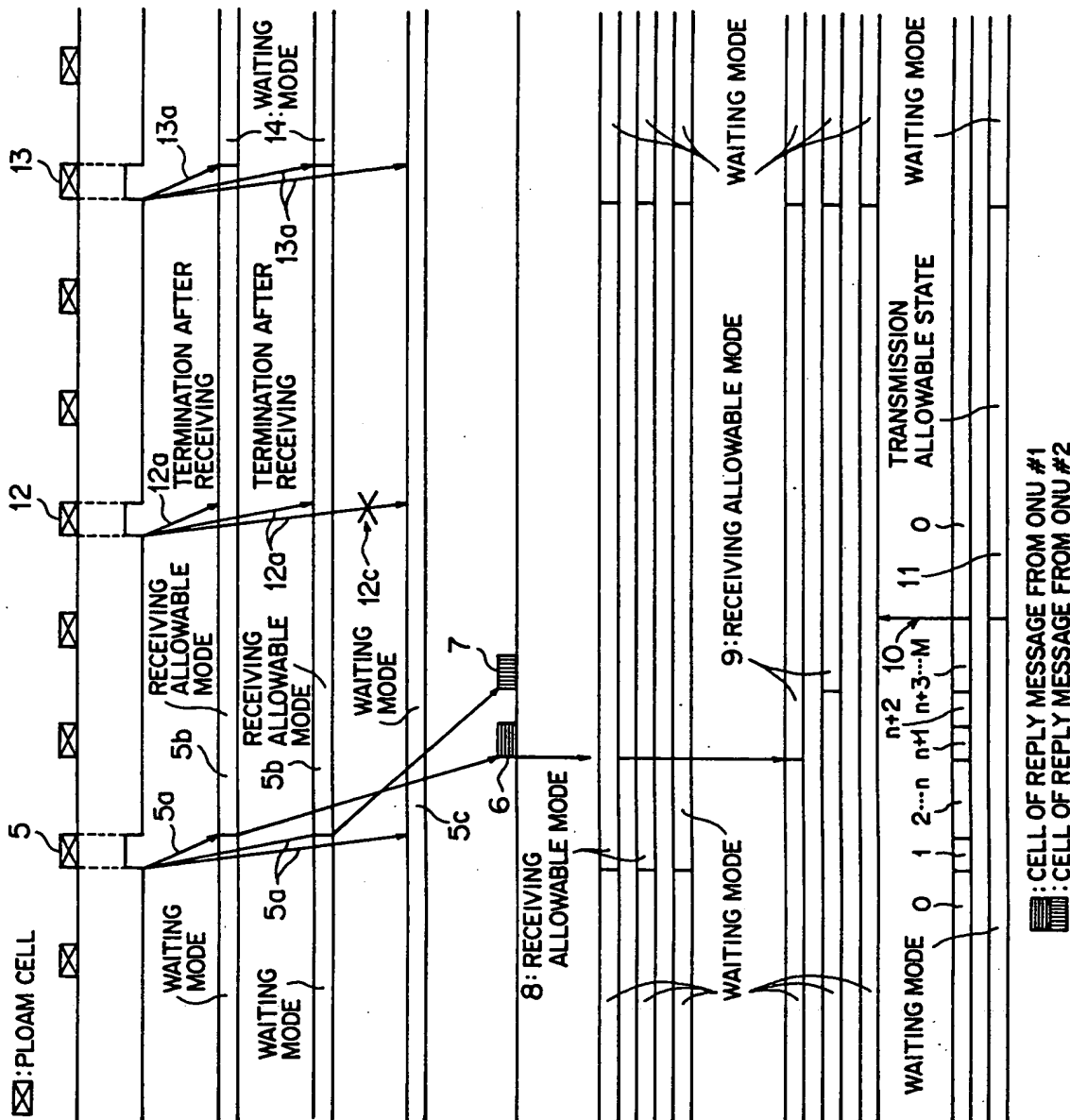


FIG. 13



(1) DOWNSTREAM CELL

(2) VENDOR SPECIFIC DETERMINATION

(3) ONU #1 (MANUFACTURED BY COMPANY A)
RECEIVING ALLOWABLE
MODE / WAITING MODE

(4) ONU #2 (MANUFACTURED BY COMPANY A)
RECEIVING ALLOWABLE
MODE / WAITING MODE

(5) ONU #3 (MANUFACTURED BY COMPANY B)
RECEIVING ALLOWABLE
MODE / WAITING MODE

(6) UPSTREAM CELL

(7) OLT (EXPECTED VALUE)
ONU #1
ONU #2
ONU #3

(8) OLT (ONU STATE MANAGEMENT)
ONU #1
ONU #2
ONU #3

(9) TIMER
(10) OLT STATE

FIG.14

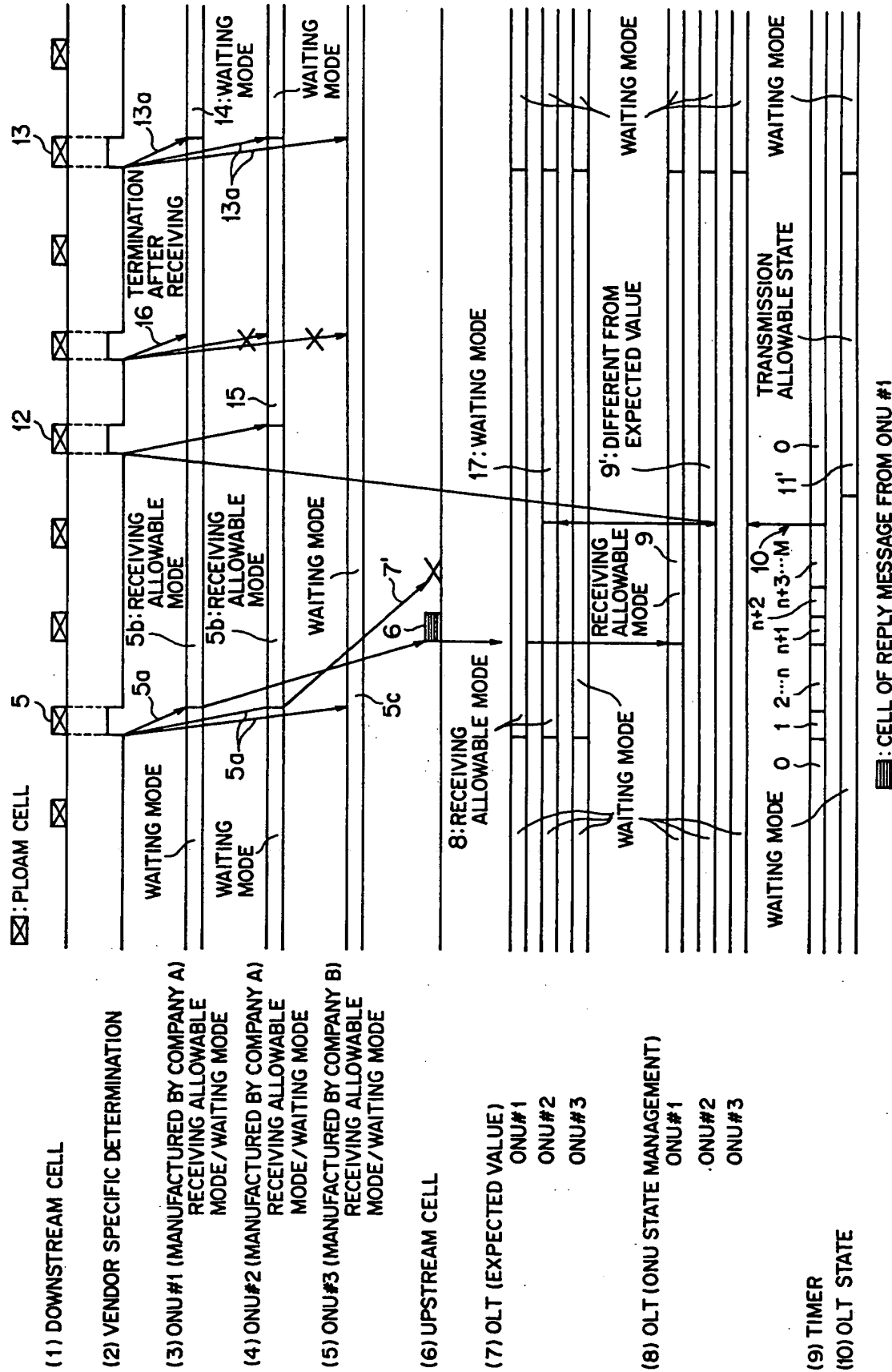
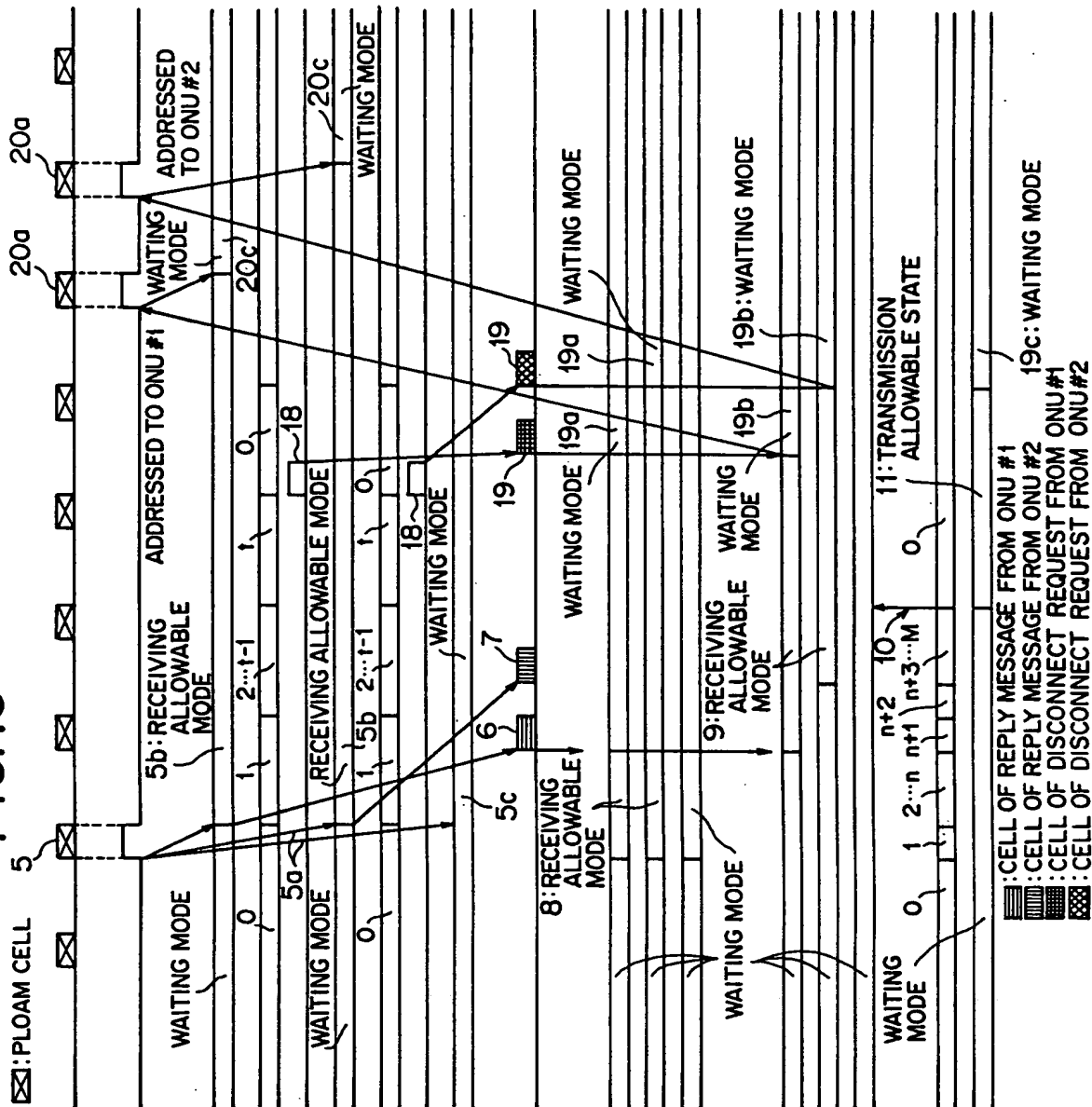


FIG. 15



(1) DOWNSTREAM CELL

(2) VENDOR SPECIFIC DETERMINATION

(3) ONU #1 (MANUFACTURED BY COMPANY A) RECEIVING ALLOWABLE MODE/WAITING MODE

(4) TIMER
(5) DISCONNECT REQUEST TRIGGER
(6) DISCONNECT REQUEST TRIGGER
(7) DISCONNECT REQUEST TRIGGER
(8) DISCONNECT REQUEST TRIGGER

(9) OLT (EXPECTED VALUE) ONU #1
(10) OLT (ONU STATE MANAGEMENT) ONU #1
(11) OLT (ONU STATE MANAGEMENT) ONU #2
(12) OLT (ONU STATE MANAGEMENT) ONU #3

(13) OLT (EXPECTED VALUE) ONU #1
(14) OLT (EXPECTED VALUE) ONU #2
(15) OLT (EXPECTED VALUE) ONU #3

(16) OLT (EXPECTED VALUE) ONU #1
(17) OLT (EXPECTED VALUE) ONU #2
(18) OLT (EXPECTED VALUE) ONU #3

(19) OLT (EXPECTED VALUE)

(20) OLT (EXPECTED VALUE)

FIG. 16

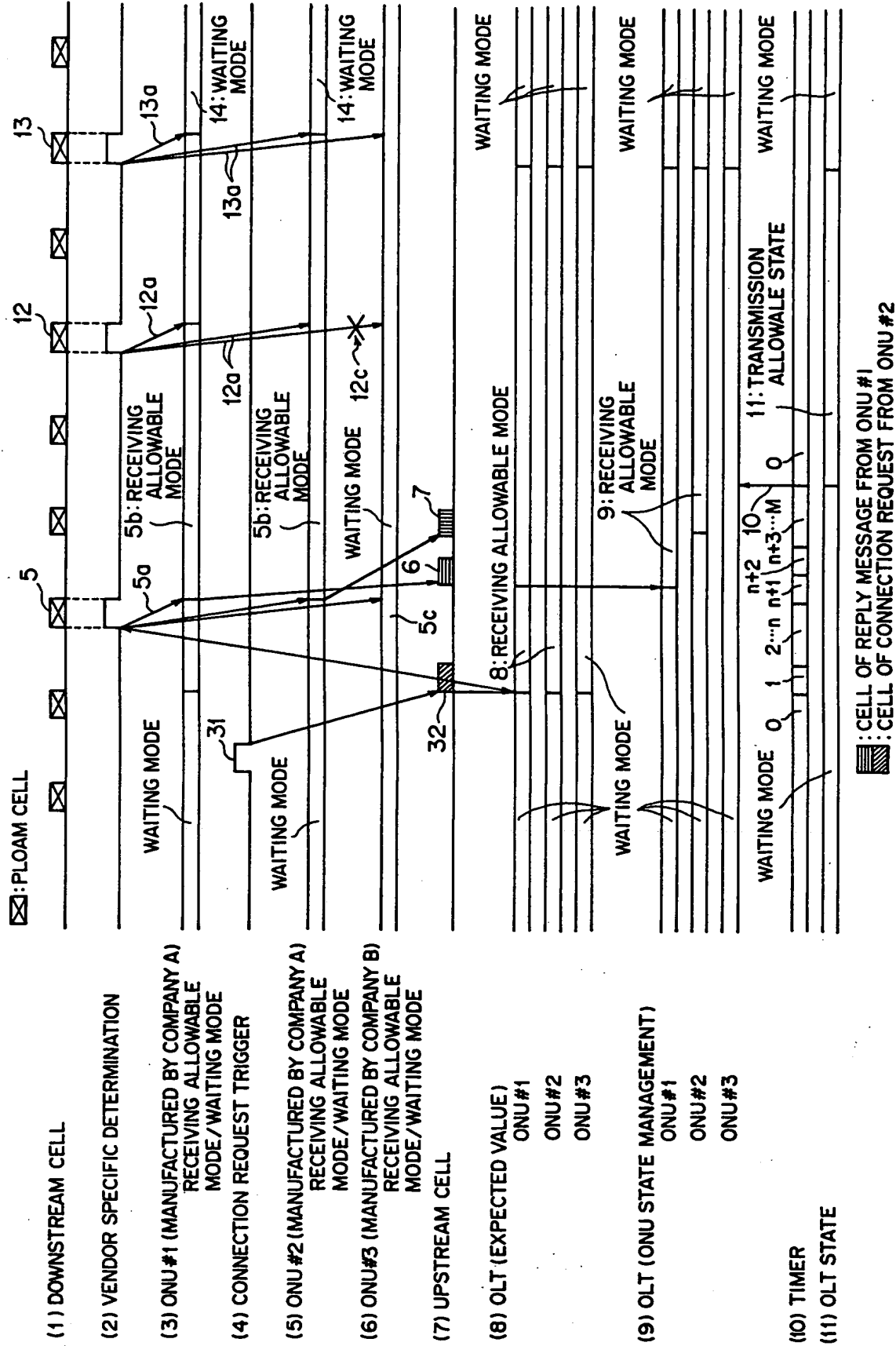


FIG. 17

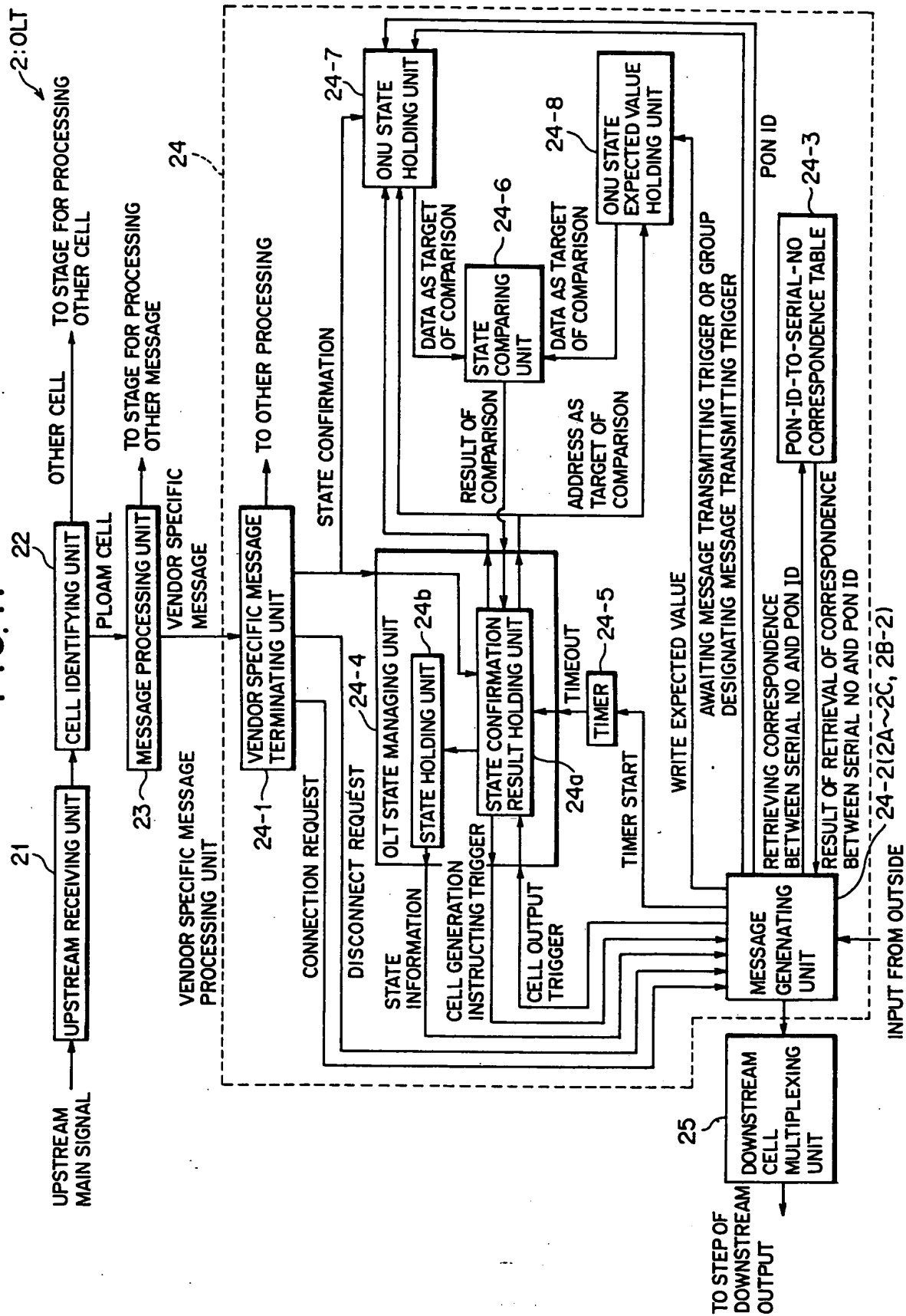


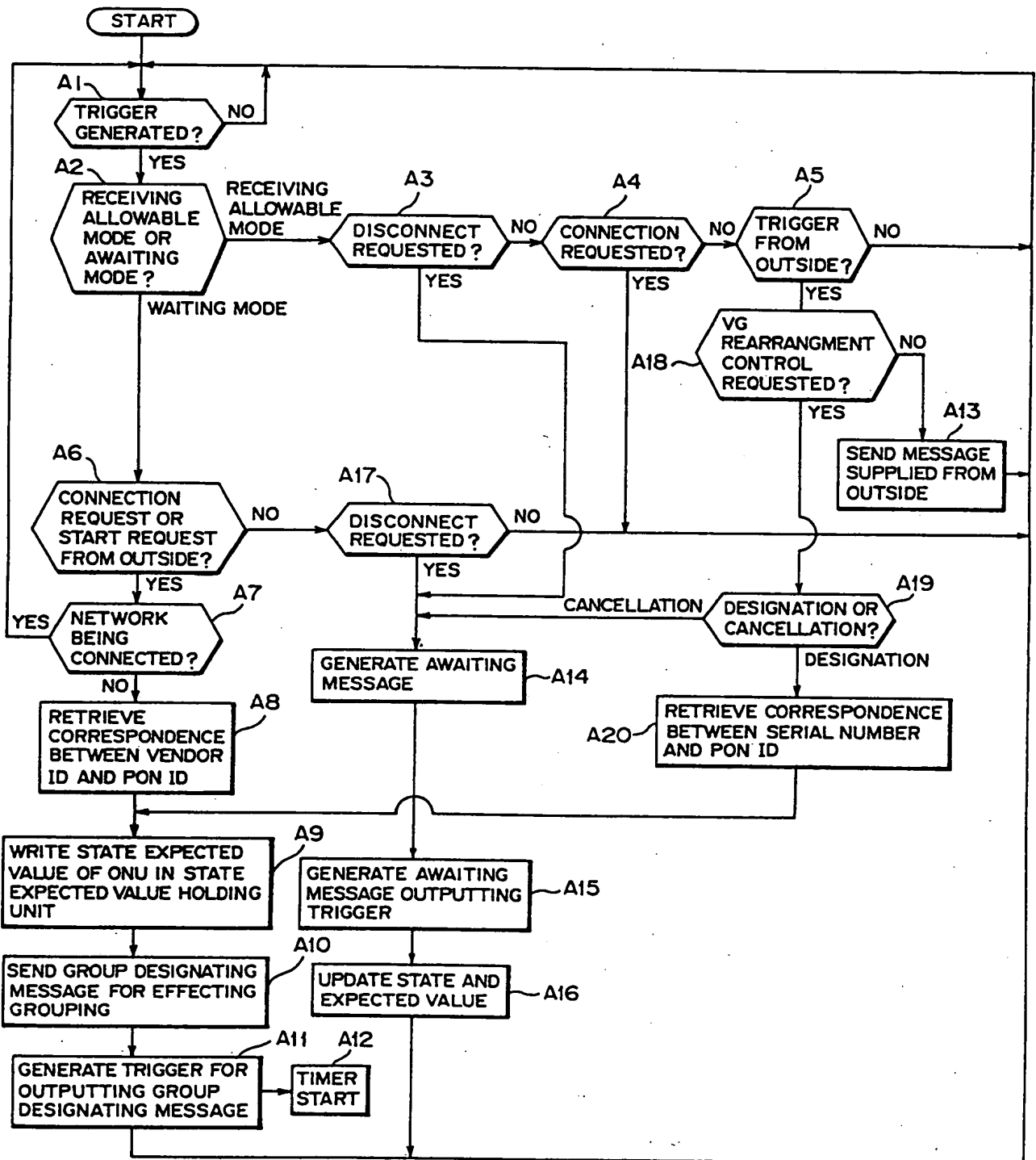
FIG. 18A

BYTE	CONTENTS	
40	xxxxxxx	INDIVIDUAL PON-ID OR BROADCAST TYPE PON ID=0x40
41	01111zzz	COMMON MESSAGE ID, E.G., 0x78
42	0000001g	LSB IS UTILIZED AS A GROUPING FLAG
43	Serial No1-1	SERIAL NO.(1) INHERENT IN VENDOR OF ONU
44	Serial No1-2	SERIAL NO.(1) INHERENT IN VENDOR OF ONU
45	Serial No1-3	SERIAL NO.(1) INHERENT IN VENDOR OF ONU
46	Serial No1-4	SERIAL NO.(1) INHERENT IN VENDOR OF ONU
47	Serial No2-1	SERIAL NO.(2) INHERENT IN VENDOR OF ONU
48	Serial No2-2	SERIAL NO.(2) INHERENT IN VENDOR OF ONU
49	Serial No2-3	SERIAL NO.(2) INHERENT IN VENDOR OF ONU
50	Serial No2-4	SERIAL NO.(2) INHERENT IN VENDOR OF ONU
51	Unspecified	DON'T CARE

FIG. 18B

g	MODE INTO WHICH CURRENT STATE IS CHANGED
0	CHANGE INTO AWAITING MODE
1	CHANGE INTO RECEIVING ALLOWABLE MODE

FIG.19



10034928.12801

FIG. 20

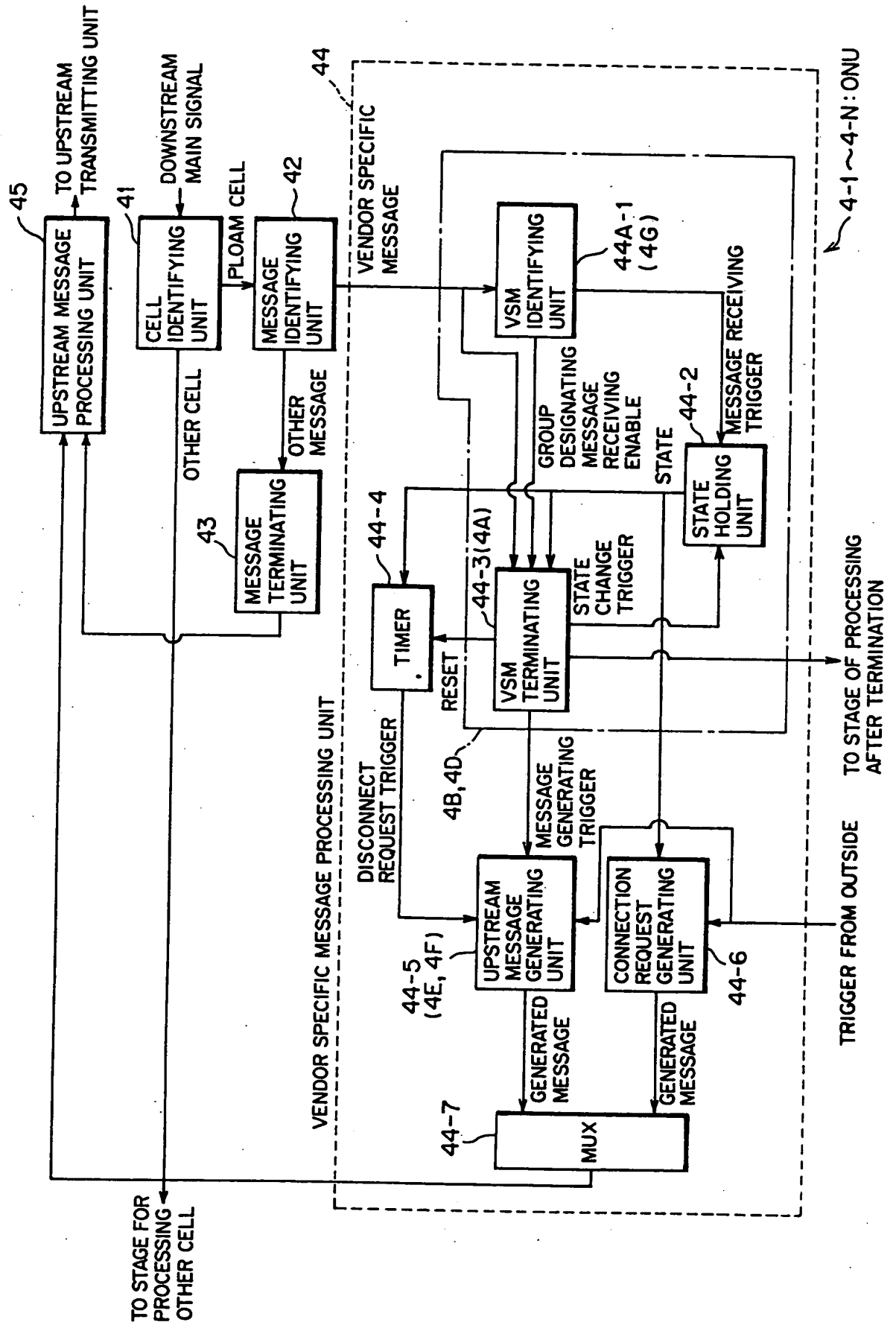
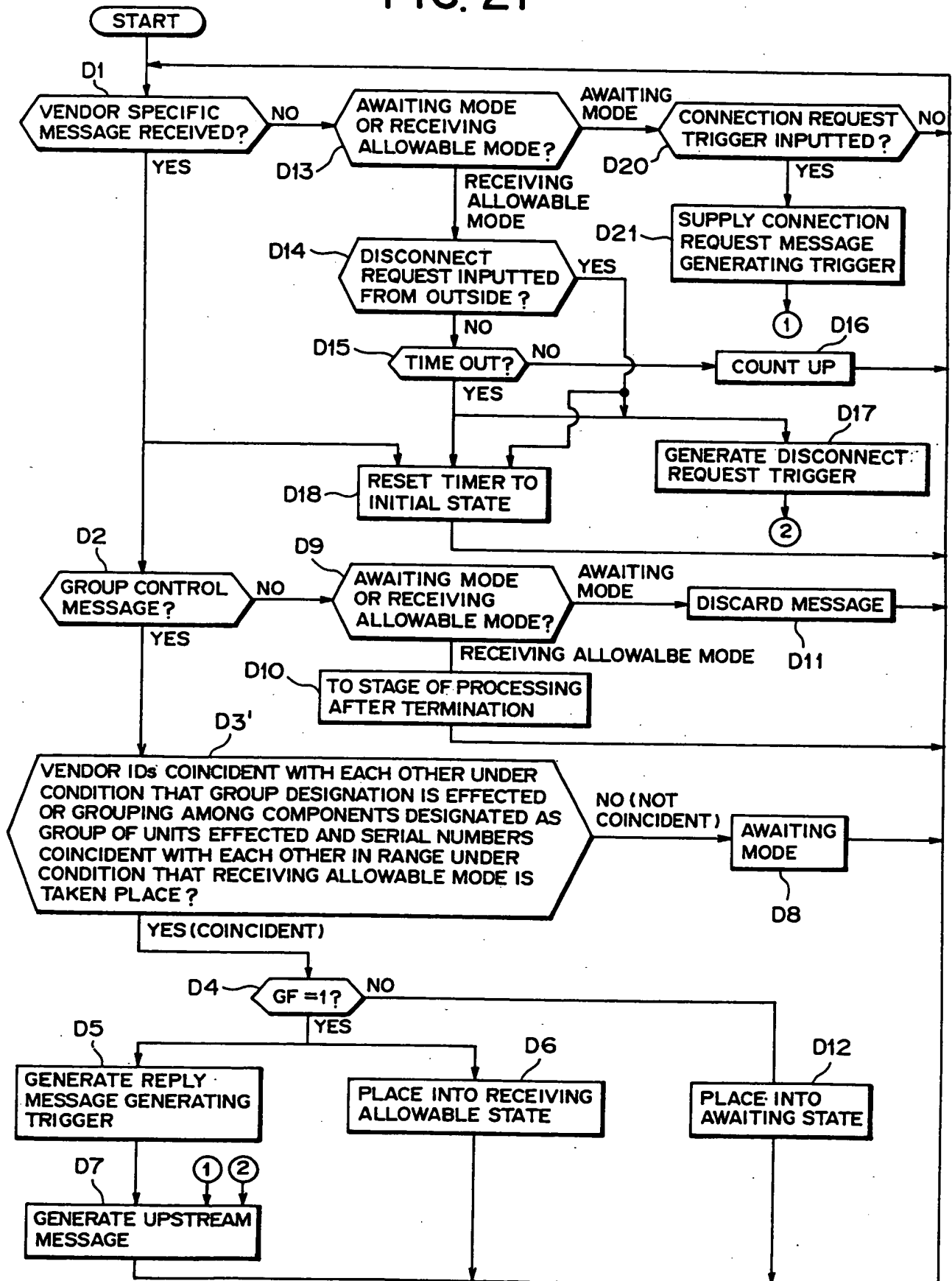


FIG. 21



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FIG. 22

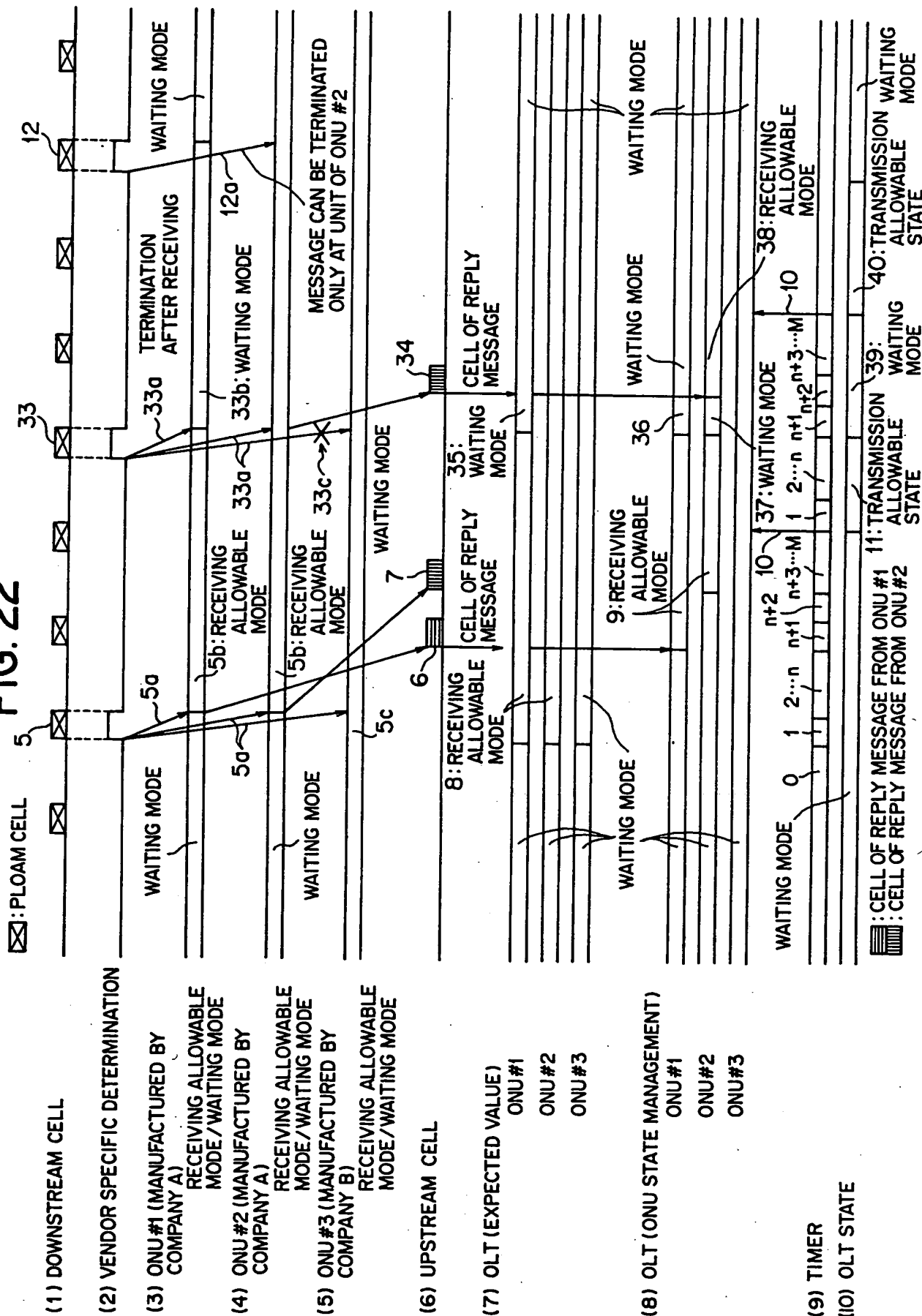


FIG. 24

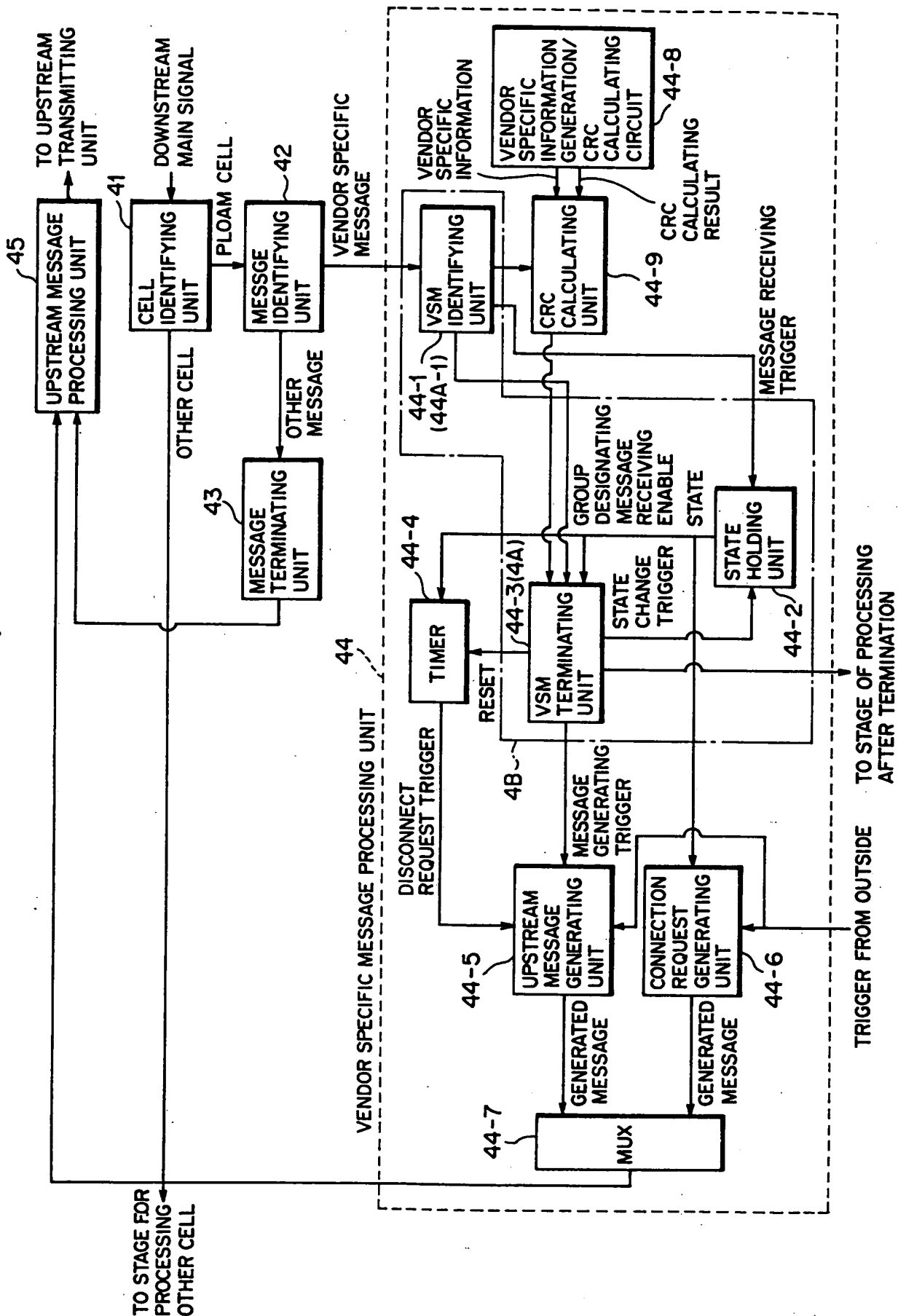


FIG. 25

• TRANSMITTING SIDE

41	42	43	44	45	46	47	48	49	50	51	52
a	b	c	d	e	f	g	h	i	j		
A	B	C	D	E	F	G	H	I	J		
a+A	b+B	c+C	d+D	e+E	f+F	g+G	h+H	i+I	j+J	CRC	

① TRANSMITTING MESSAGE = MESSAGE FIELD EORED WITH VENDOR SPECIFIC INFORMATION

a+A	b+B	c+C	d+D	e+E	f+F	g+G	h+H	i+I	j+J	CRC	
											0

• RECEIVING SIDE

A	B	C	D	E	F	G	H	I	J	CRC1	
a	b	c	d	e	f	g	h	i	j	CRC+CRC1	

⑤ EOR OF RECEIVING MESSAGE AND VENDOR SPECIFIC INFORMATION (ORIGINAL DATA)

a+A	b+B	c+C	d+D	e+E	f+F	g+G	h+H	i+I	j+J	CRC	
											0

• RECEIVING SIDE

a+A	b+B	c+C	d+D	e+E	f+F	g+G	h+H	i+I	j+J	CRC	
											0
Q	R	S	T	U	V	W	X	Y	Z	CRC2	
a+A+Q	b+B+R	c+C+S	d+D+T	e+E+U	f+F+V	g+G+W	h+H+X	i+I+Y	j+J+Z	CRC+CRC2	

⑩ CREATE EOR OF RECEIVING MESSAGE AND VENDOR SPECIFIC INFORMATION

											#0
--	--	--	--	--	--	--	--	--	--	--	----

• CRC CALCULATION RESULT 2

FIG. 26

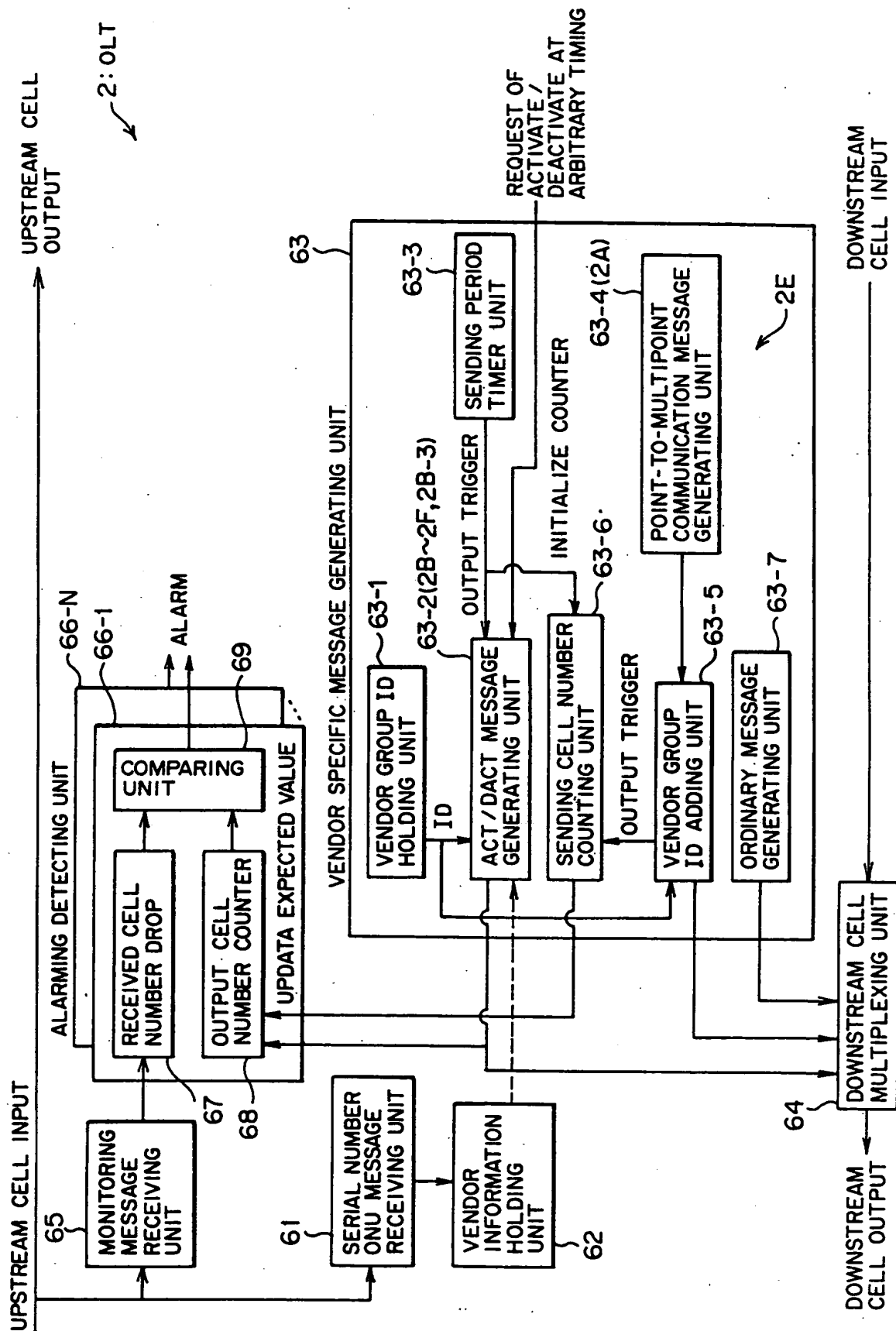


FIG.27A

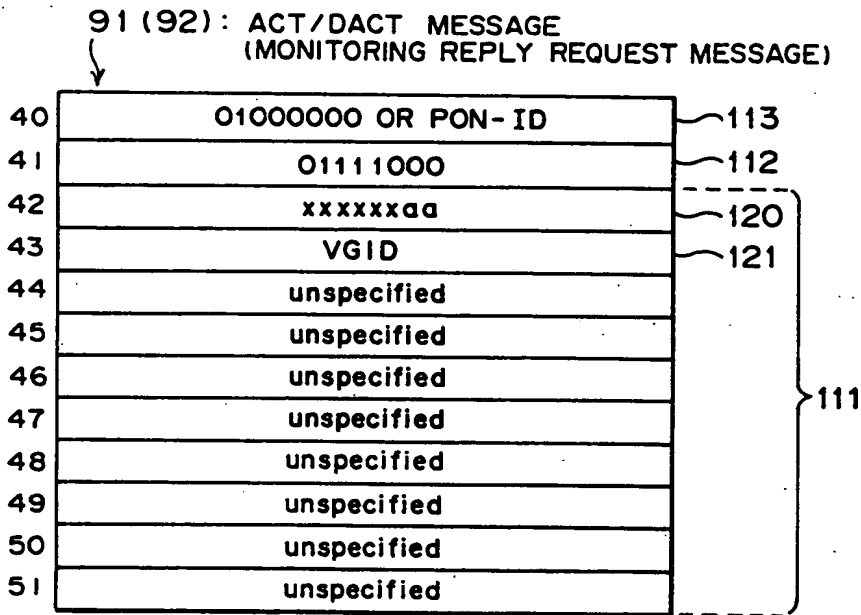


FIG.27B

aa	KIND OF MESSAGE
11	ACT MESSAGE
10 01	MONITORING REPLY REQUEST MESSAGE
00	DACT MESSAGE

FIG.28

93 : POINT-TO-MULTIPOINT
COMMUNICATION VSM

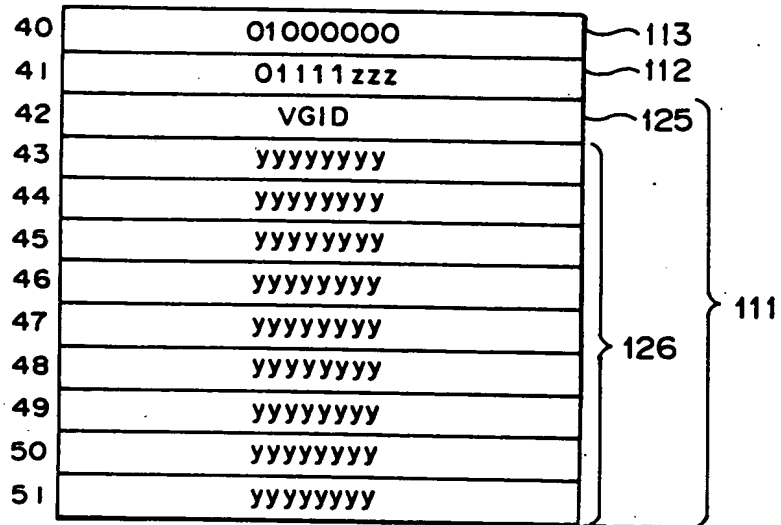


FIG.29

94 : MONITORING MESSAGE

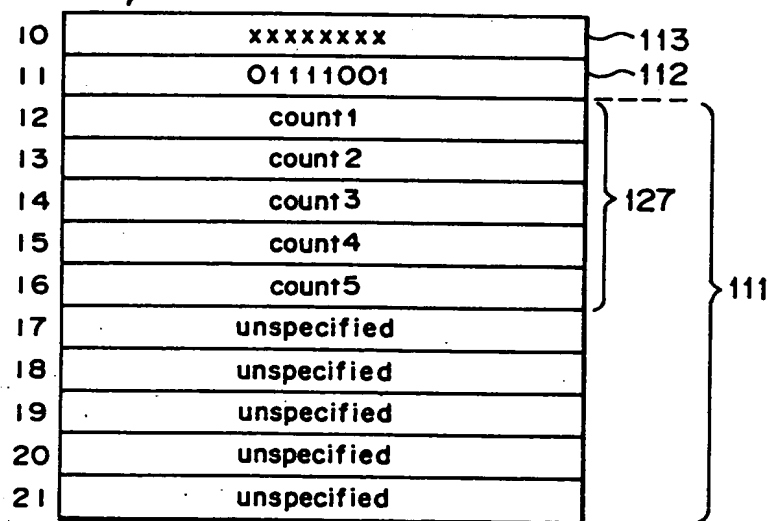
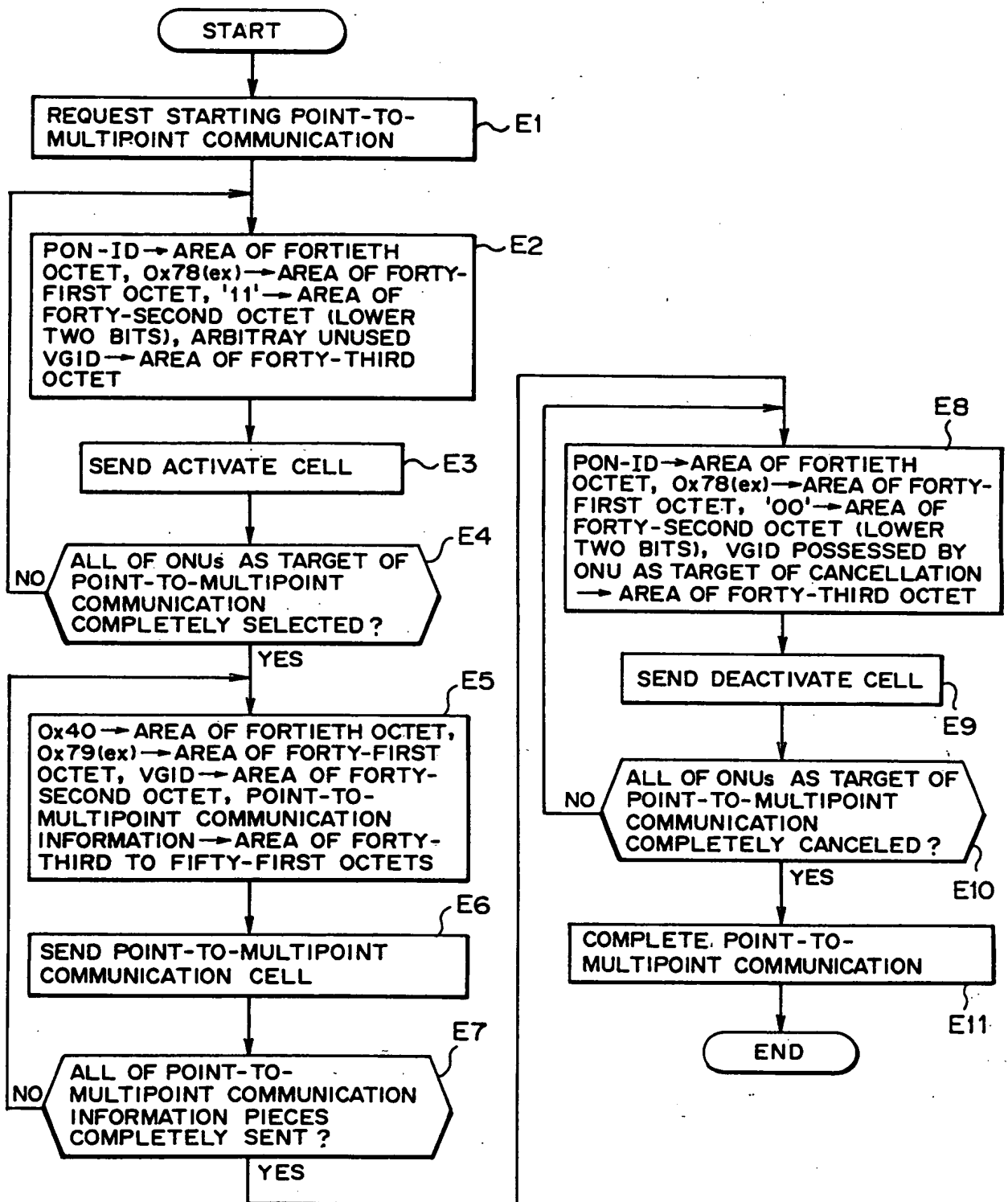


FIG. 30



10034928.122001

FIG. 31

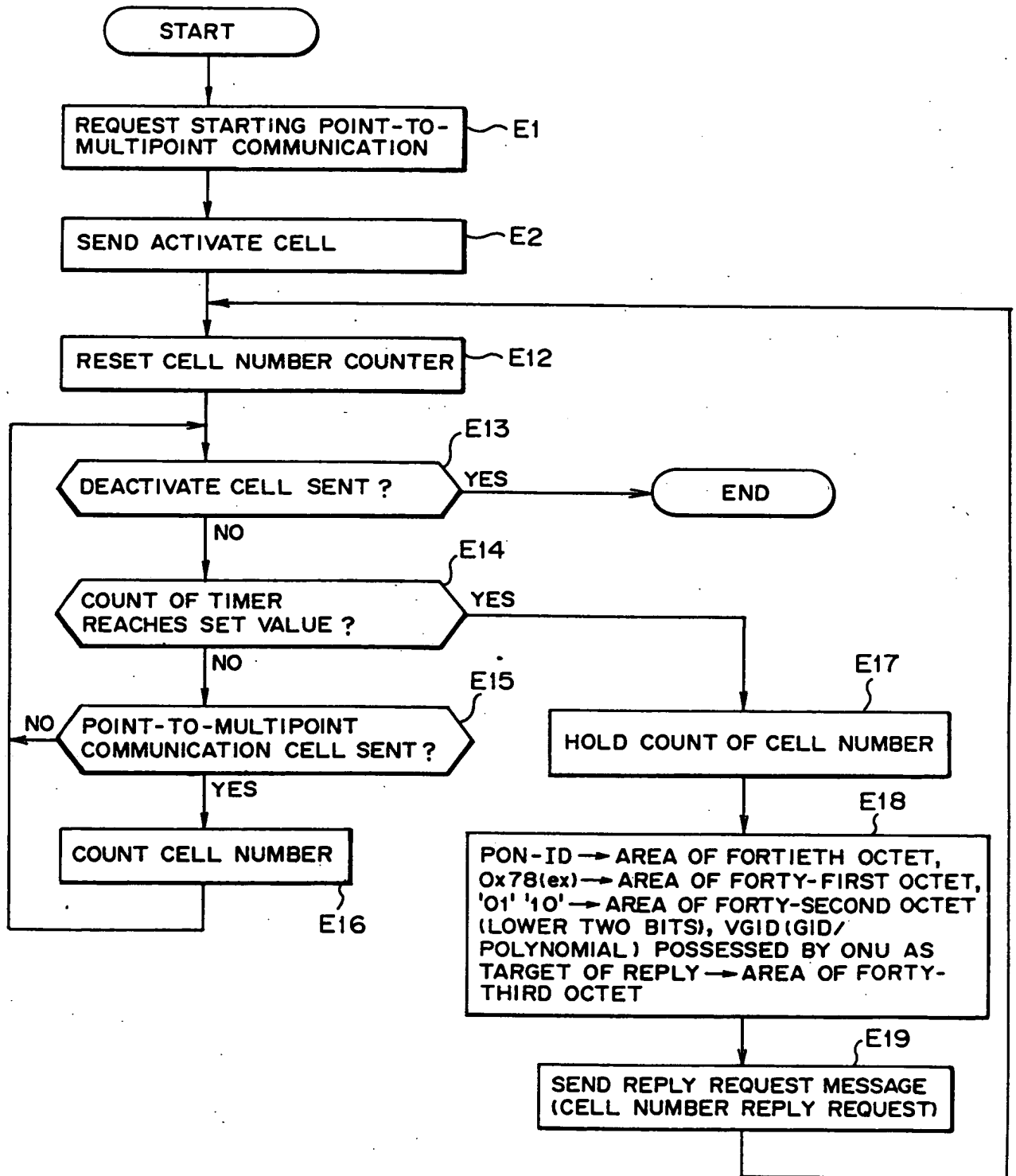


FIG. 32

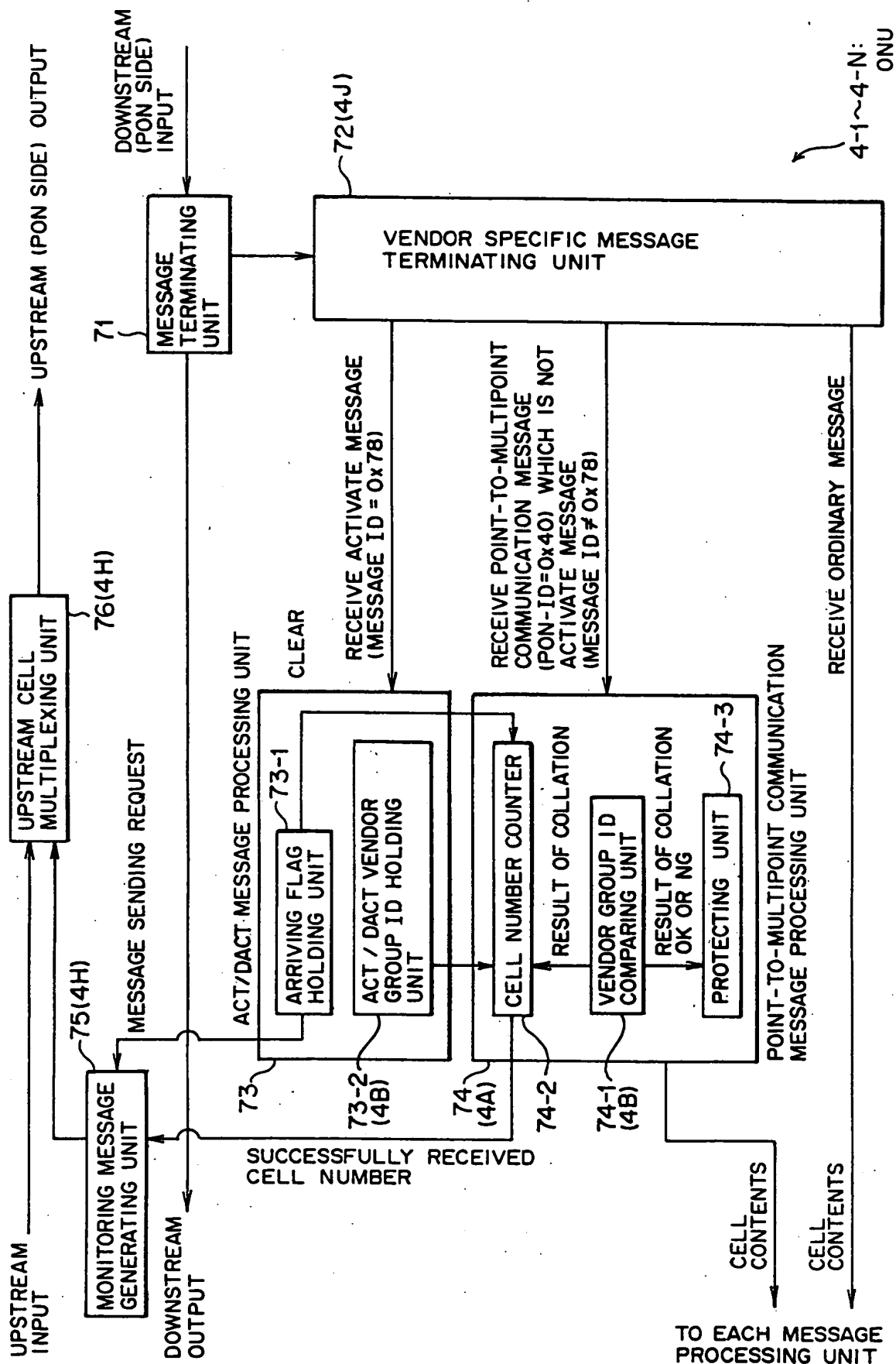
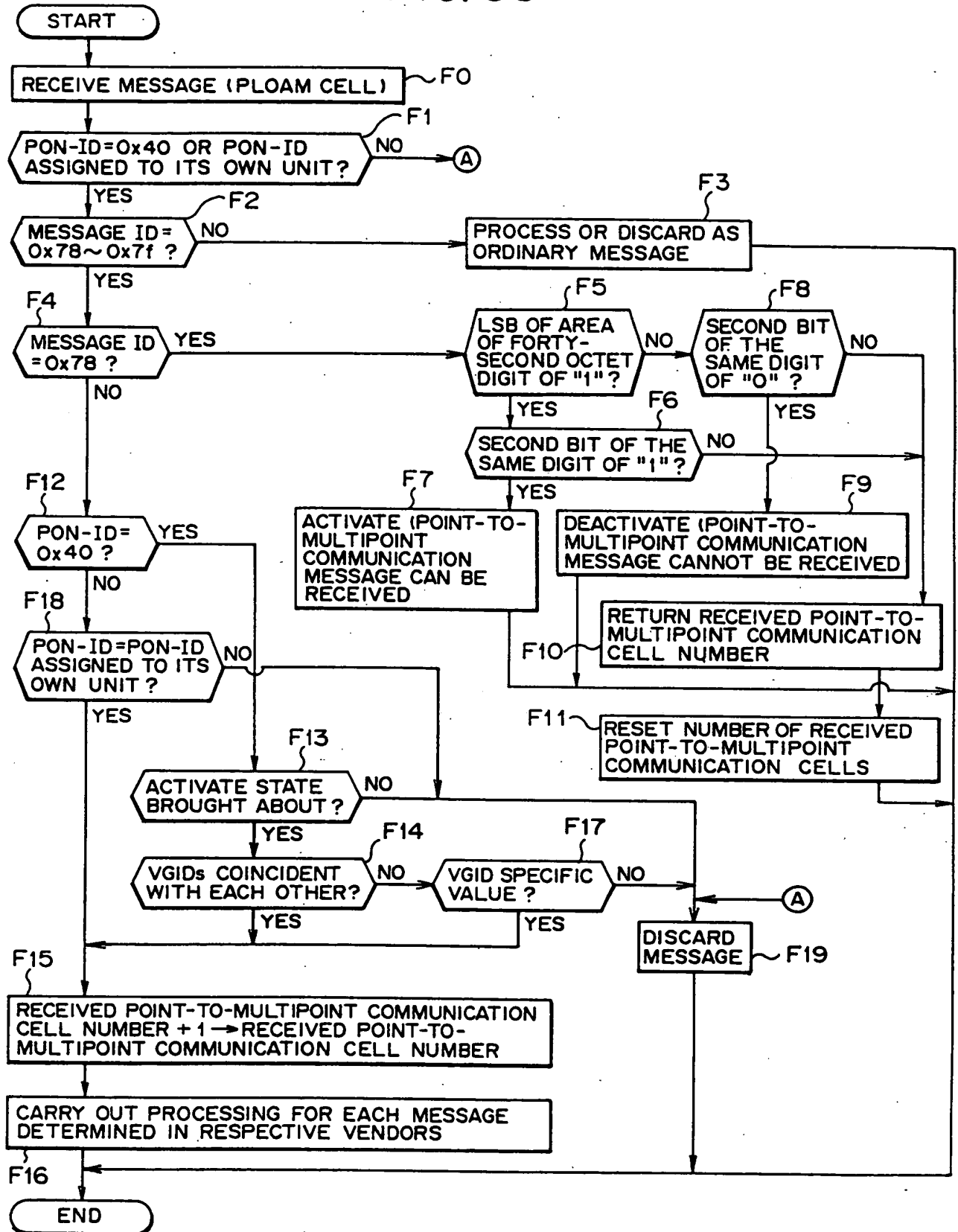


FIG. 33



10034928.12201

FIG. 34

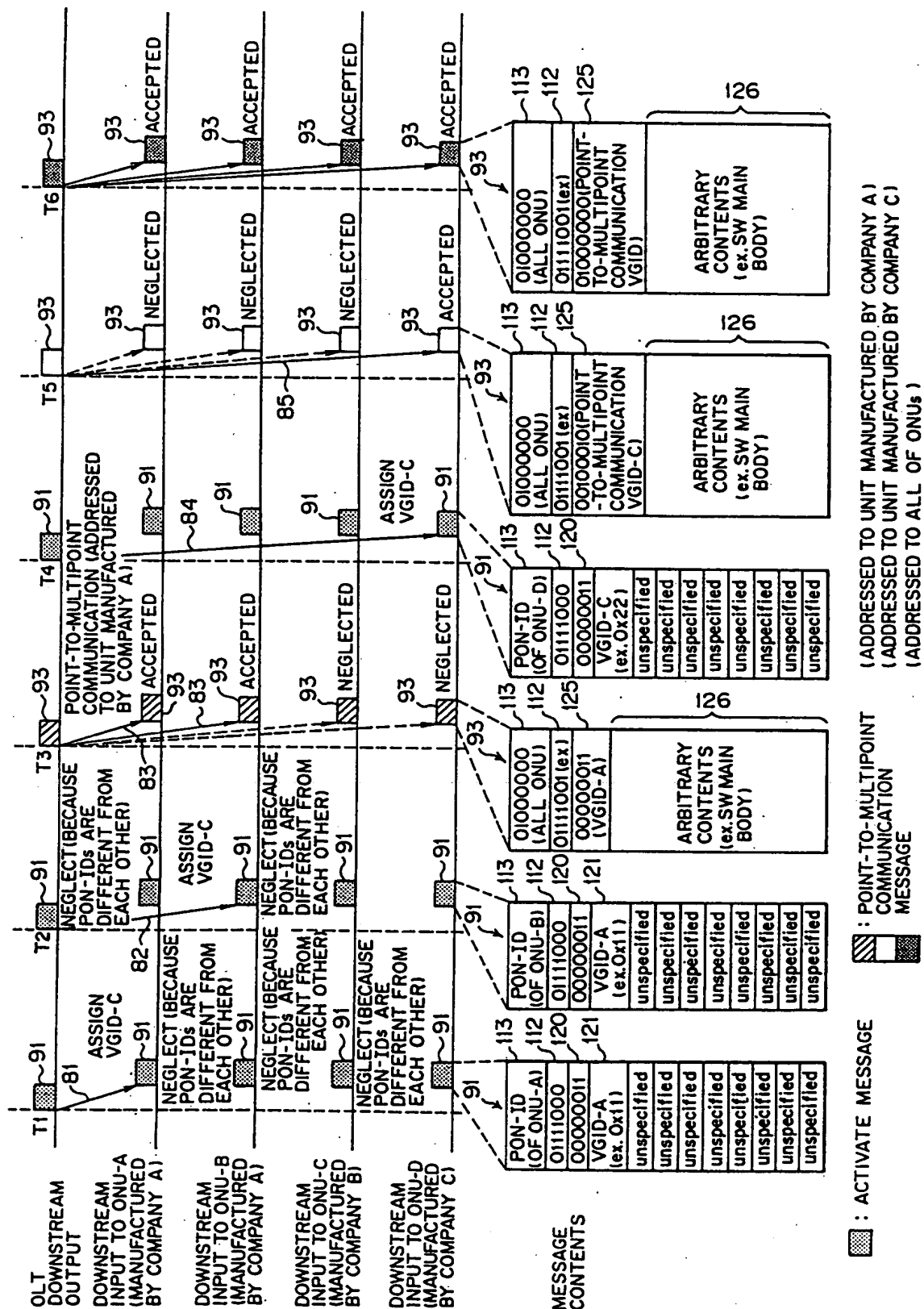


FIG. 36

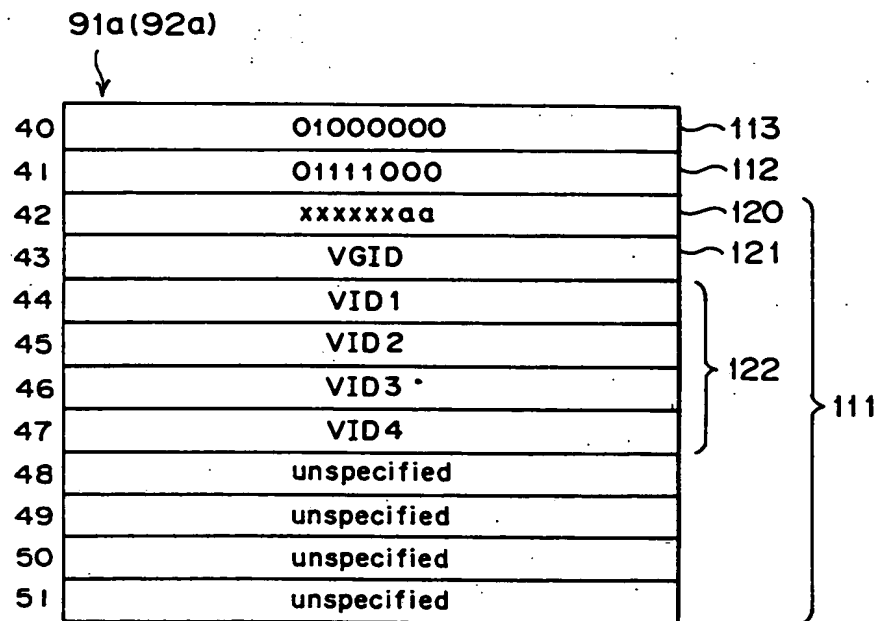
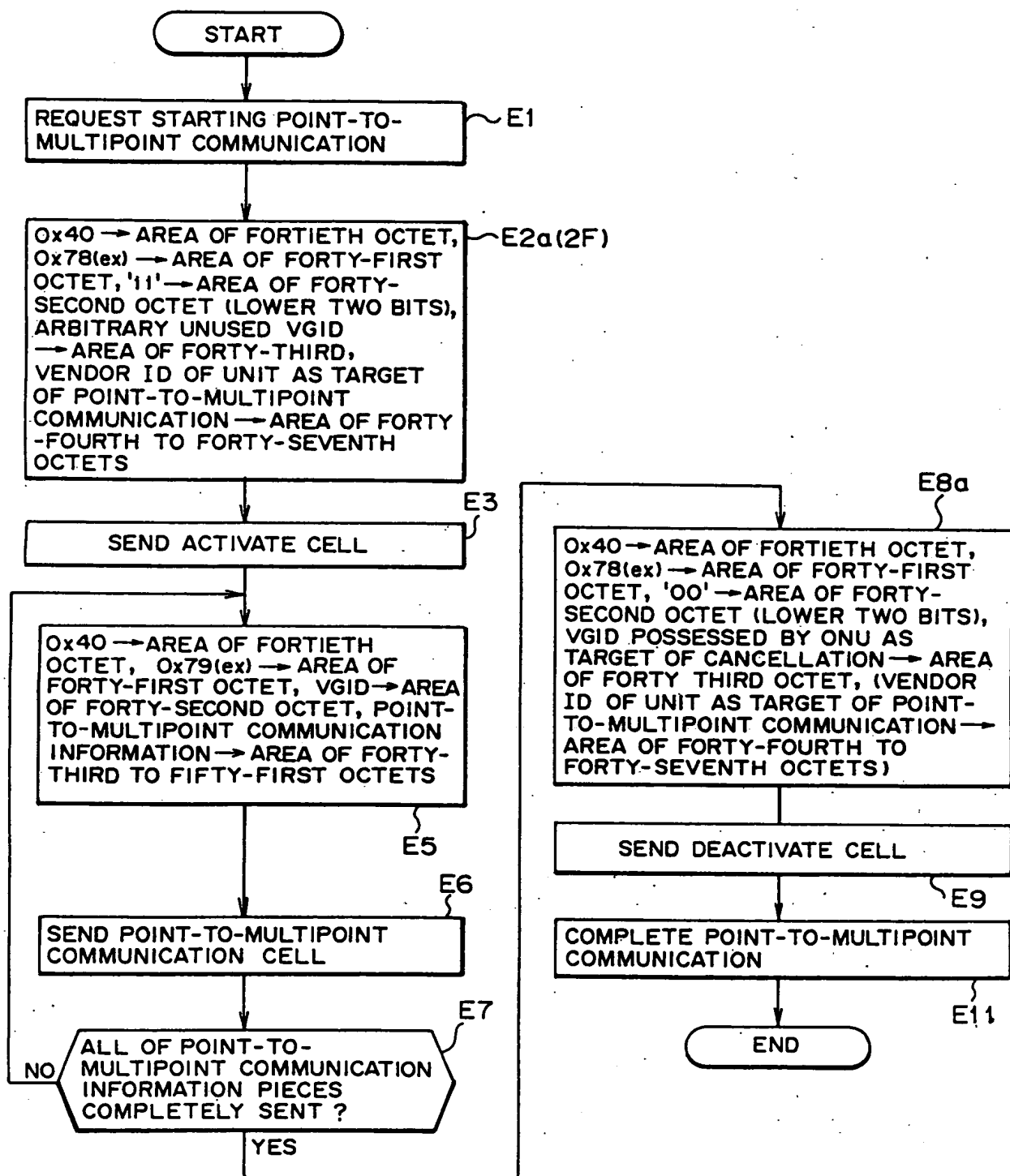


FIG. 37



10034928.122801

FIG. 38

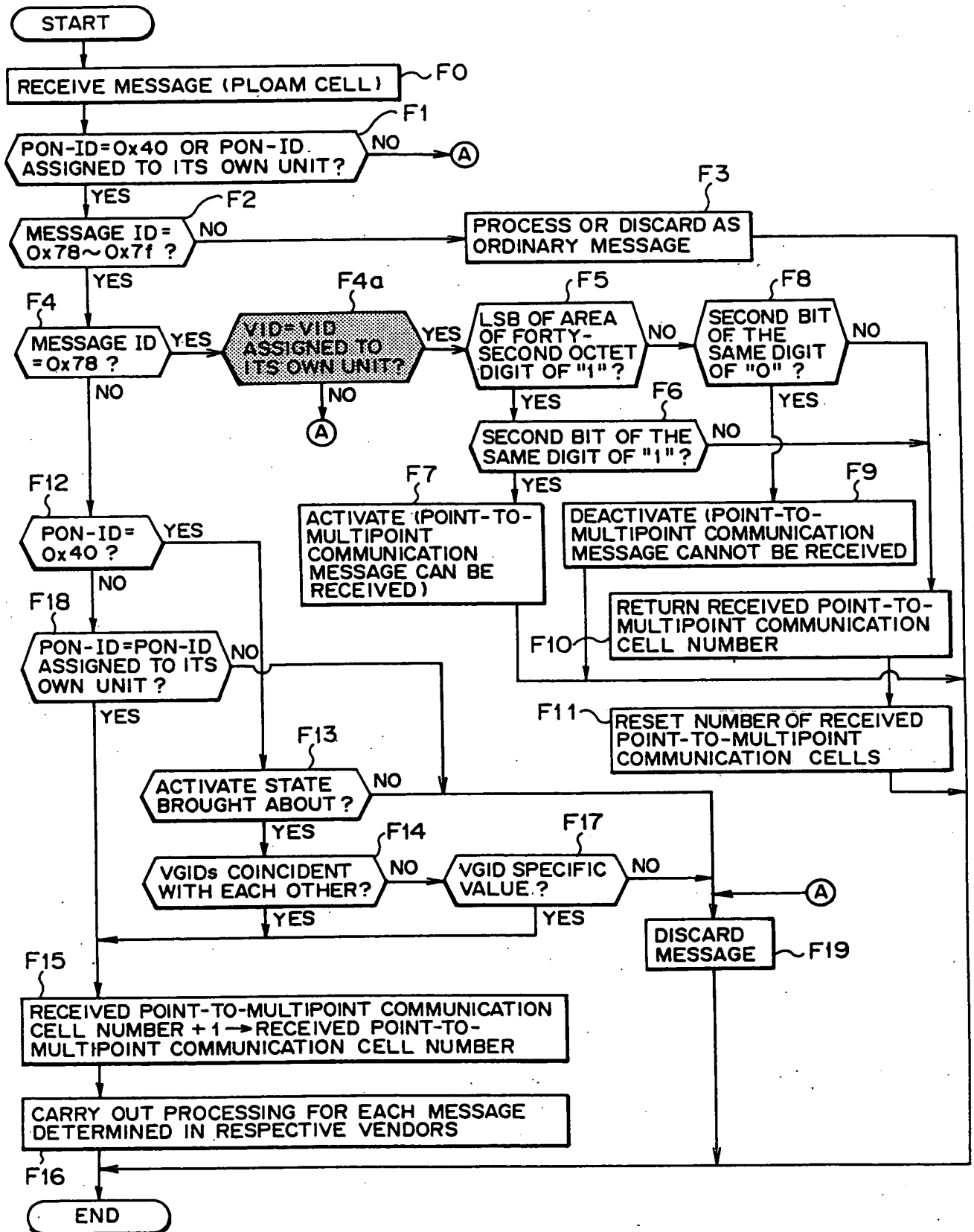


FIG. 38

FIG. 40

FIG. 40

91b (92b): ACT / DACT MESSAGE
(MONITORING REPLY REQUEST MESSAGE)

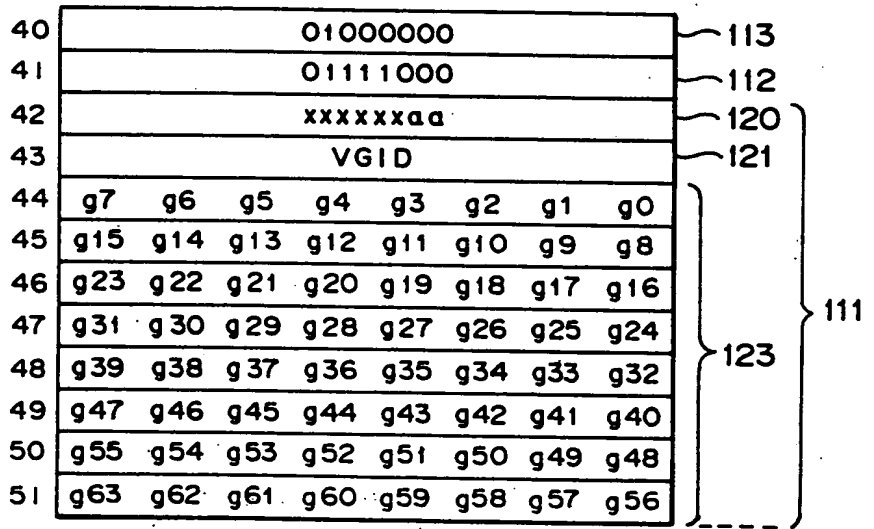


FIG. 41

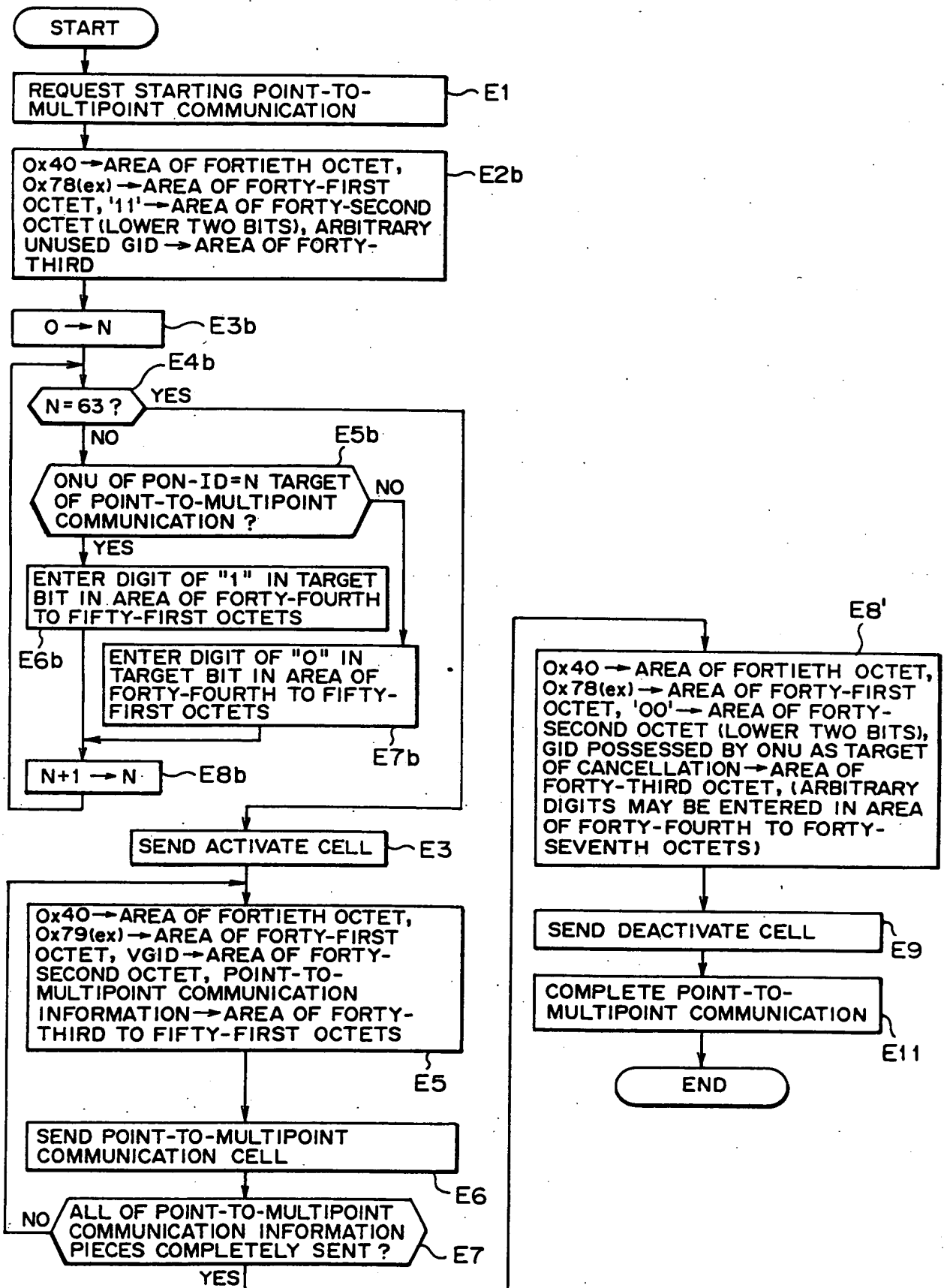


FIG. 44

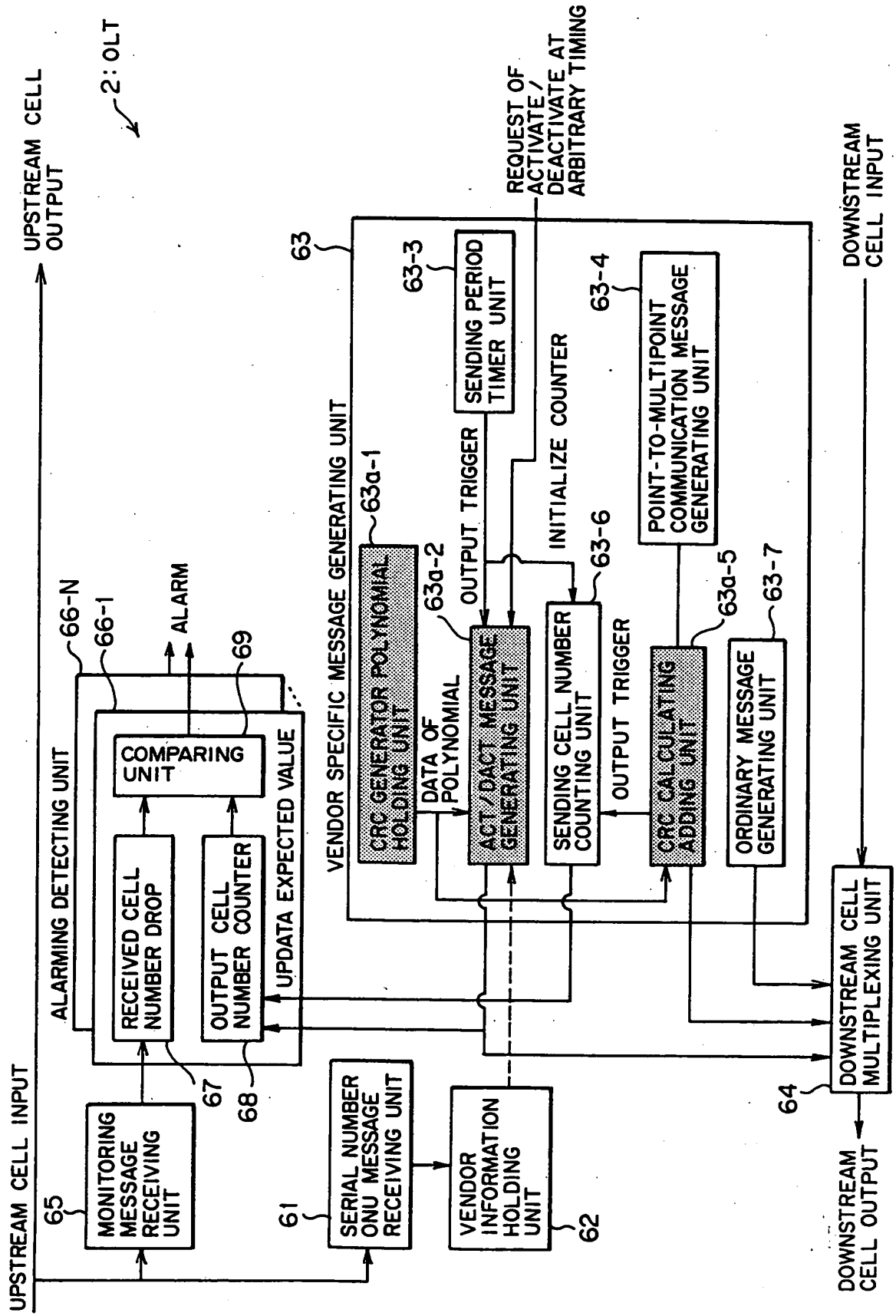


FIG. 45

91c (92c): ACT/DACT MESSAGE
(MONITORING REPLY REQUEST MESSAGE)

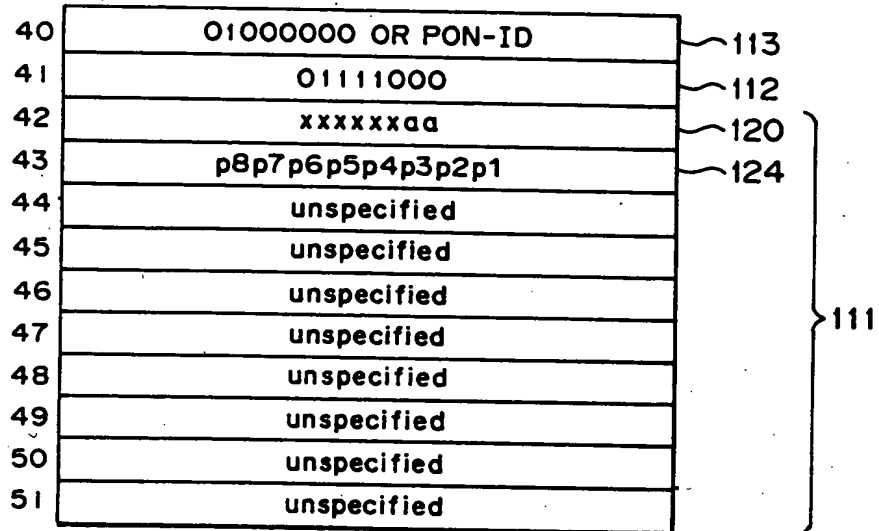


FIG. 46

93a: POINT-TO-MULTIPOINT
COMMUNICATION VSM

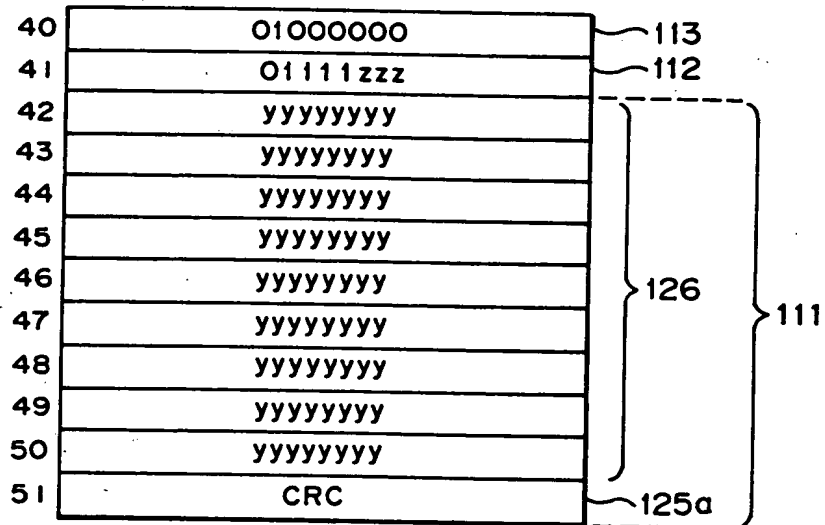
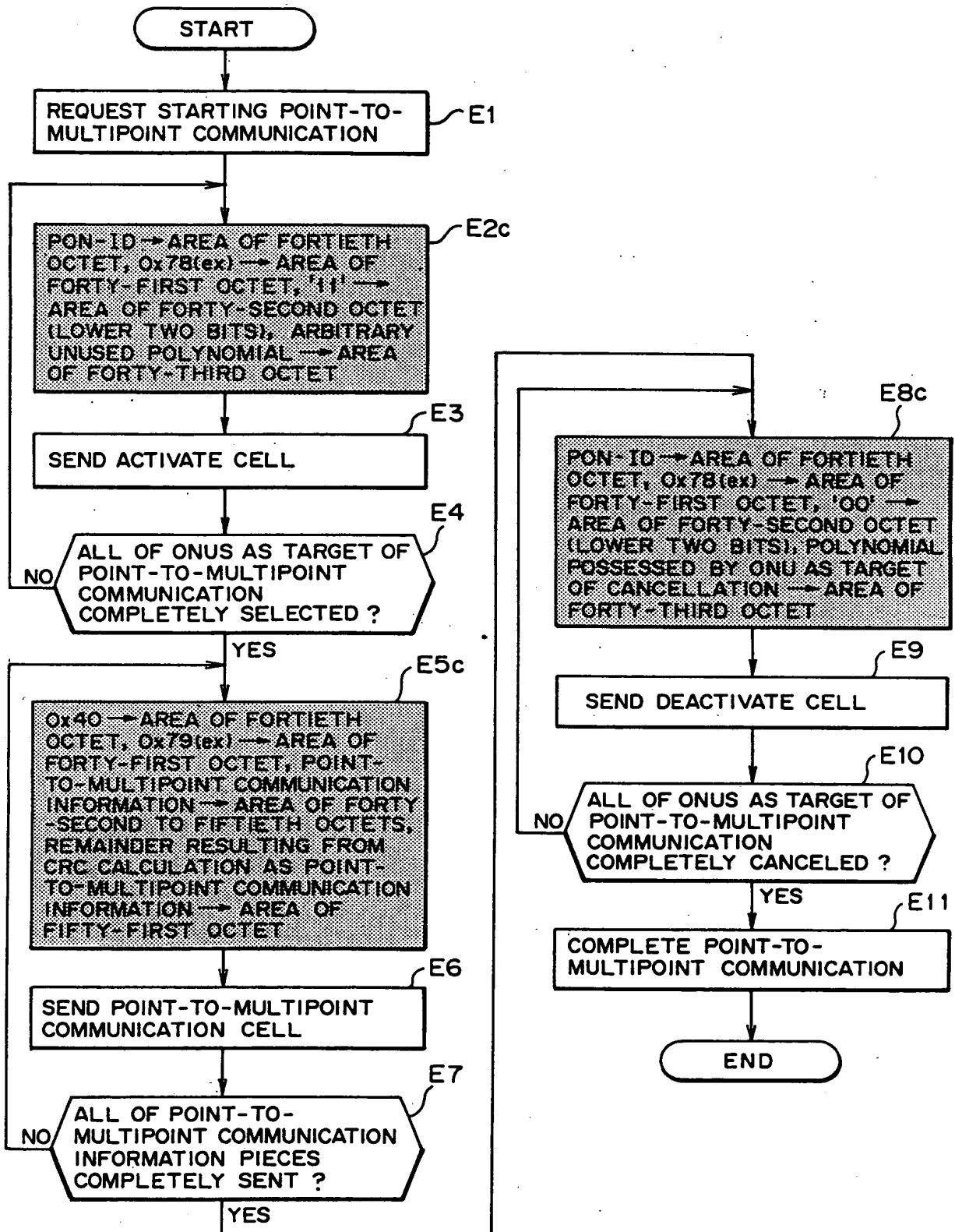


FIG. 47



10034926 128001

FIG. 48

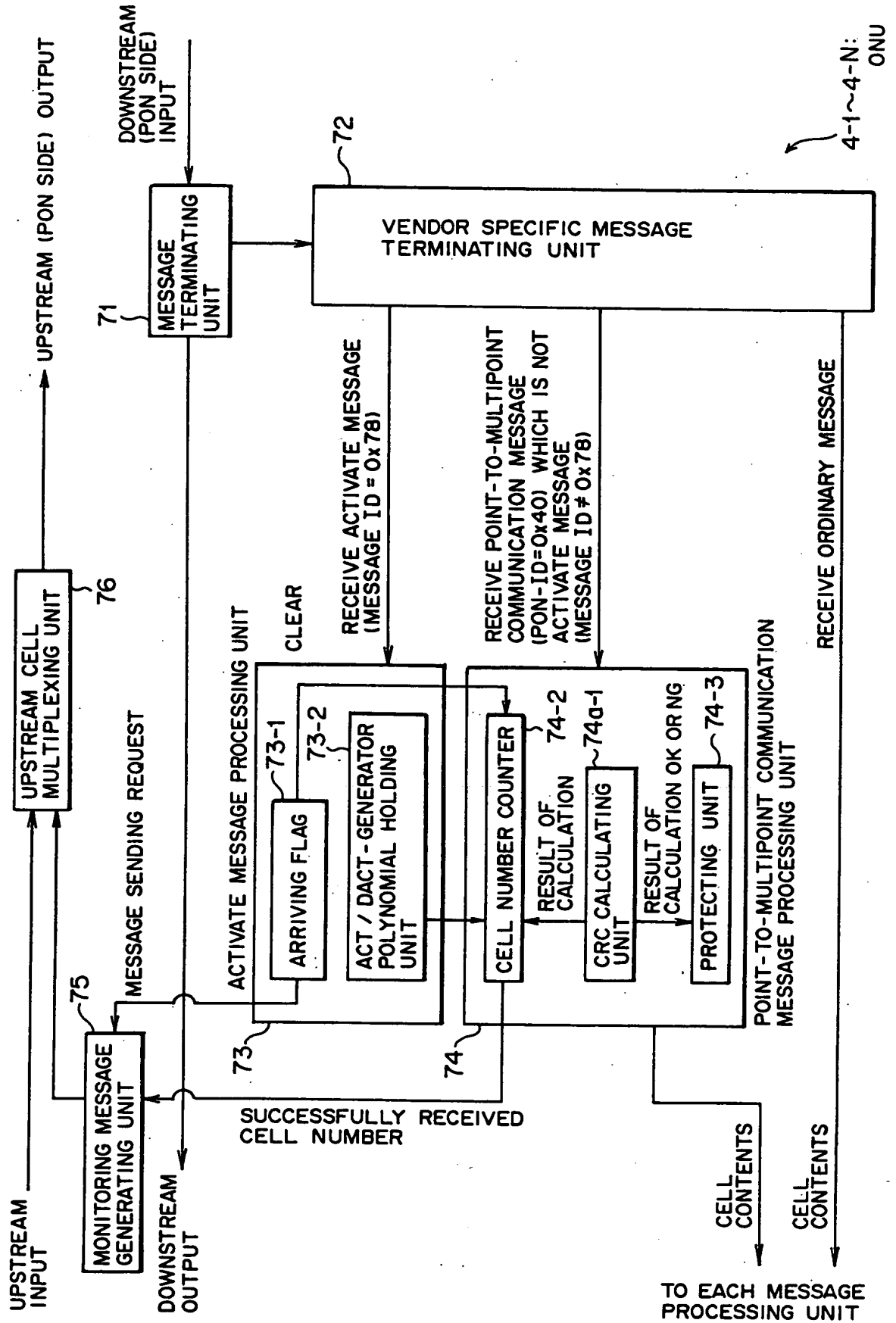
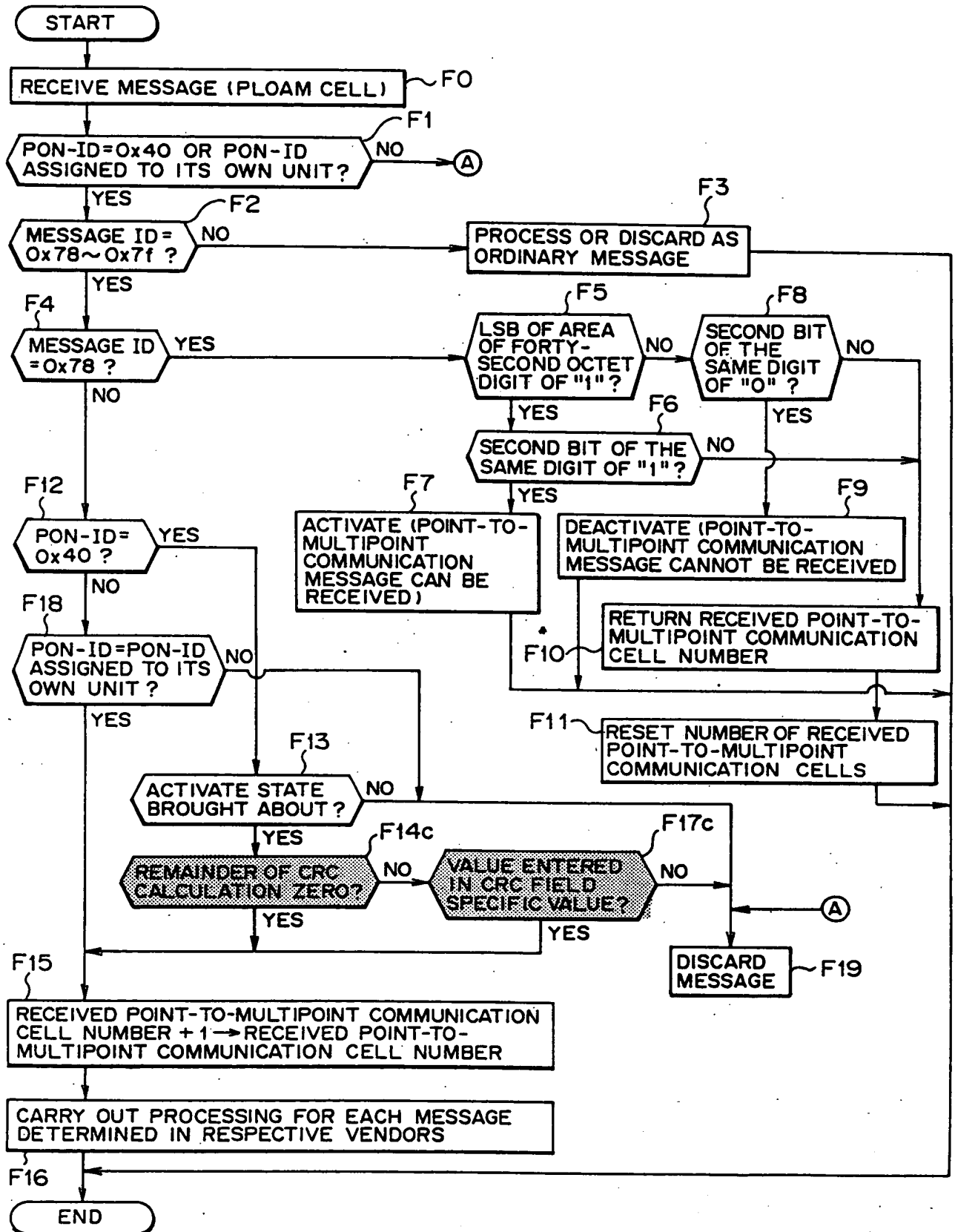


FIG. 49



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FIG.50

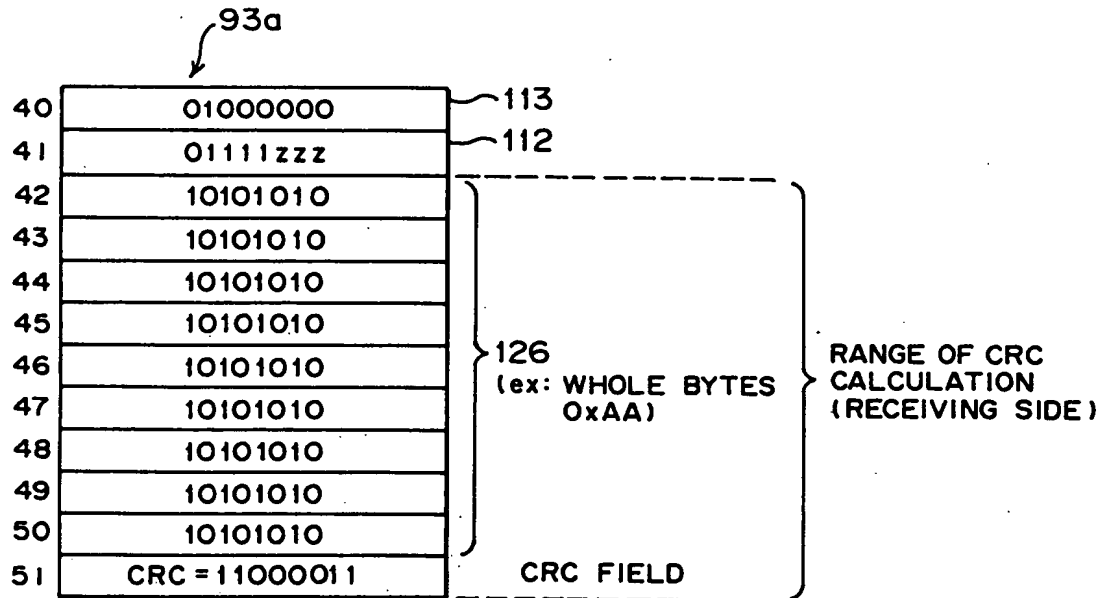


FIG.51

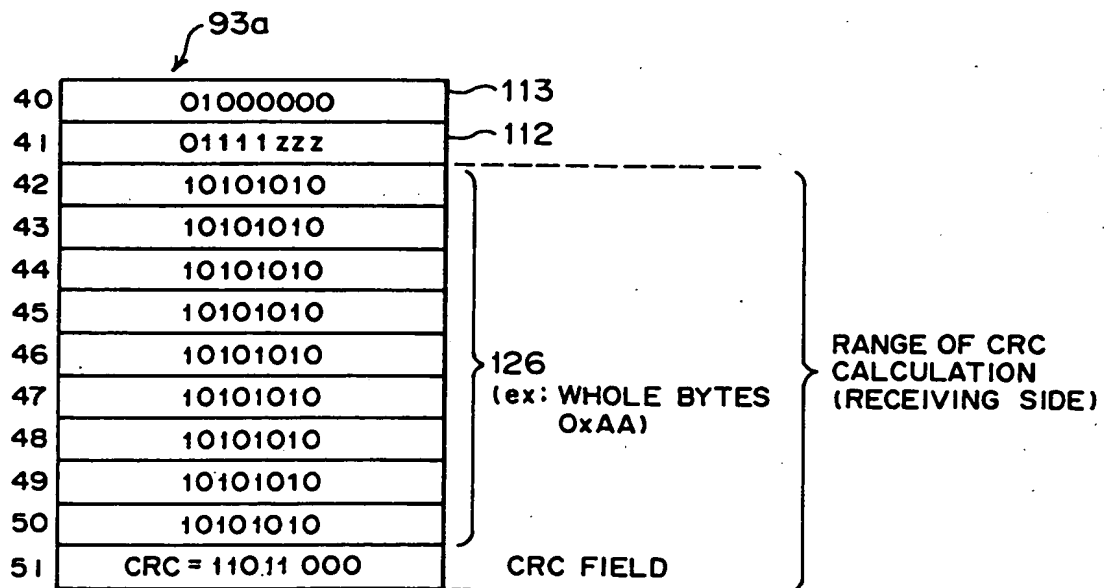


FIG. 53

91d(92d): ACT/DACT MESSAGE
(MONITORING REPLY REQUEST MESSAGE)

40	01000000 OR PON-ID	113
41	01111000	112
42	xxxxxxaa	120
43	p8p7p6p5p4p3p2p1	124
44	VID 1	122
45	VID 2	
46	VID 3	
47	VID 4	
48	unspecified	
49	unspecified	
50	unspecified	
51	unspecified	

FIG. 54

91e(92e): ACT/DACT MESSAGE
(MONITORING REPLY REQUEST MESSAGE)

40	01000000 OR PON-ID	113
41	01111000	112
42	xxxxxxaa	120
43	p8p7p6p5p4p3p2p1	124
44	g7 g6 g5 g4 g3 g2 g1 g0	123
45	g15 g14 g13 g12 g11 g10 g9 g8	
46	g23 g22 g21 g20 g19 g18 g17 g16	
47	g31 g30 g29 g28 g27 g26 g25 g24	
48	g39 g38 g37 g36 g35 g34 g33 g32	
49	g47 g46 g45 g44 g43 g42 g41 g40	
50	g55 g54 g53 g52 g51 g50 g49 g48	
51	g63 g62 g61 g60 g59 g58 g57 g56	

FIG. 55

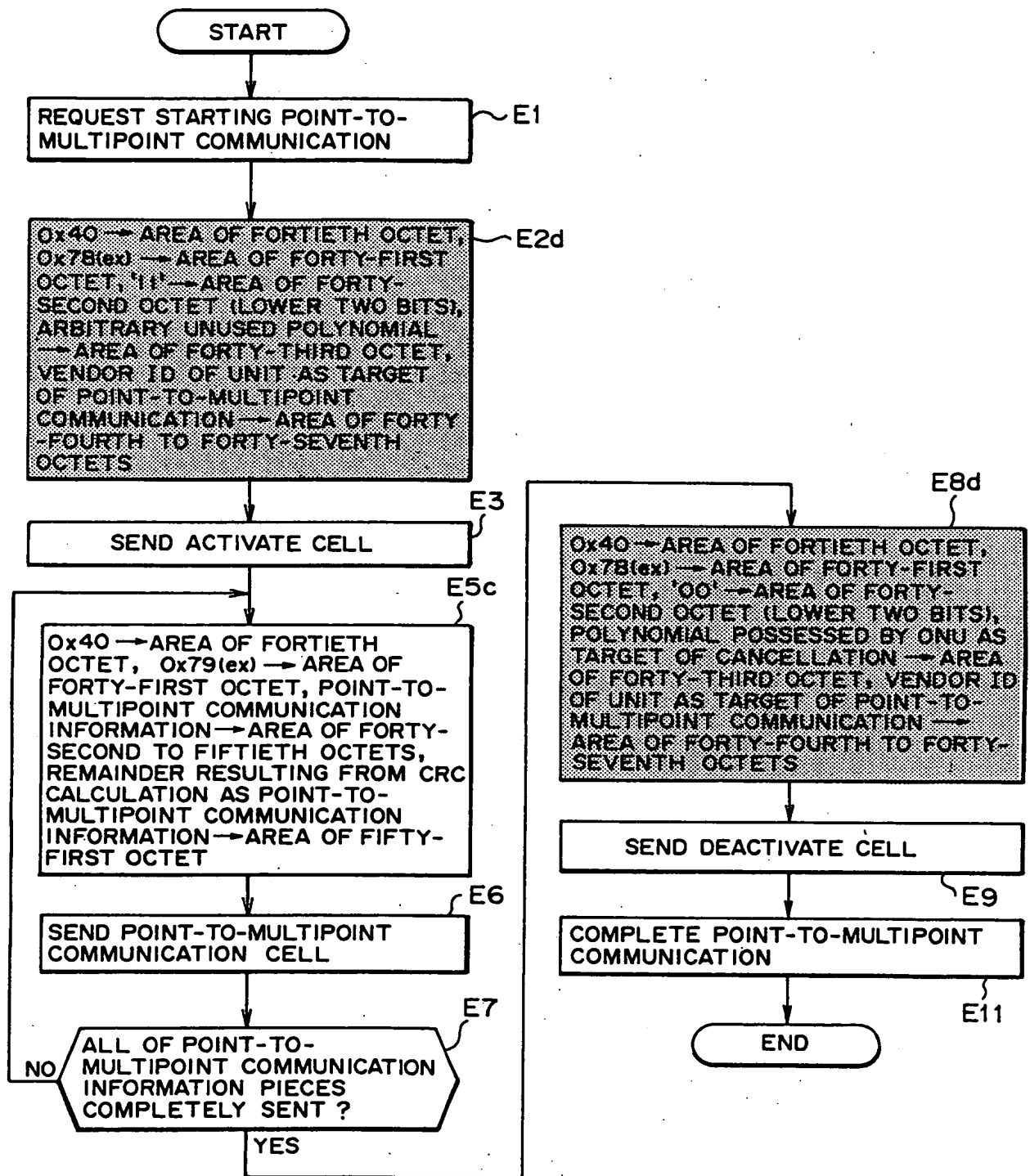
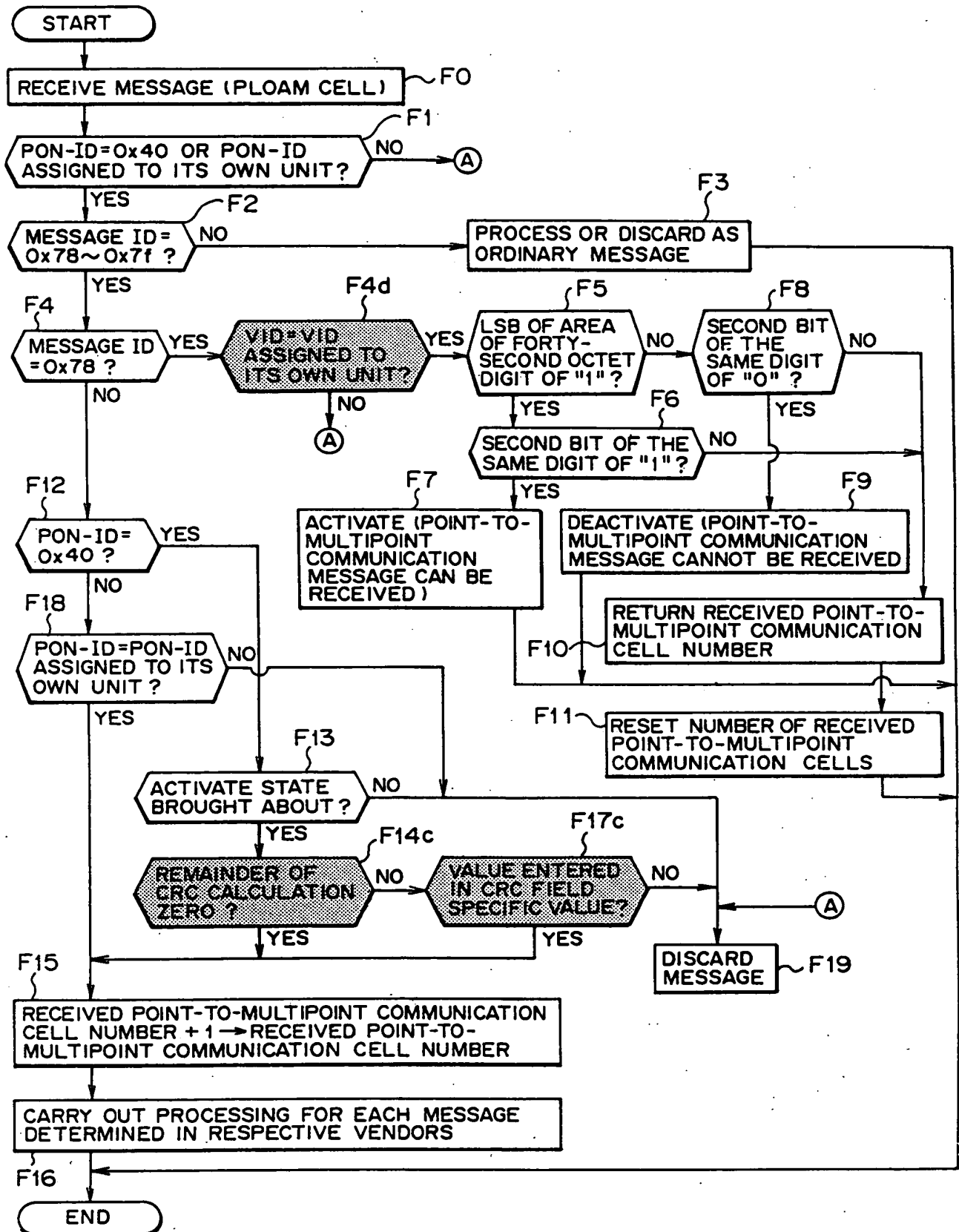


FIG. 56



10034928.12801

FIG. 57

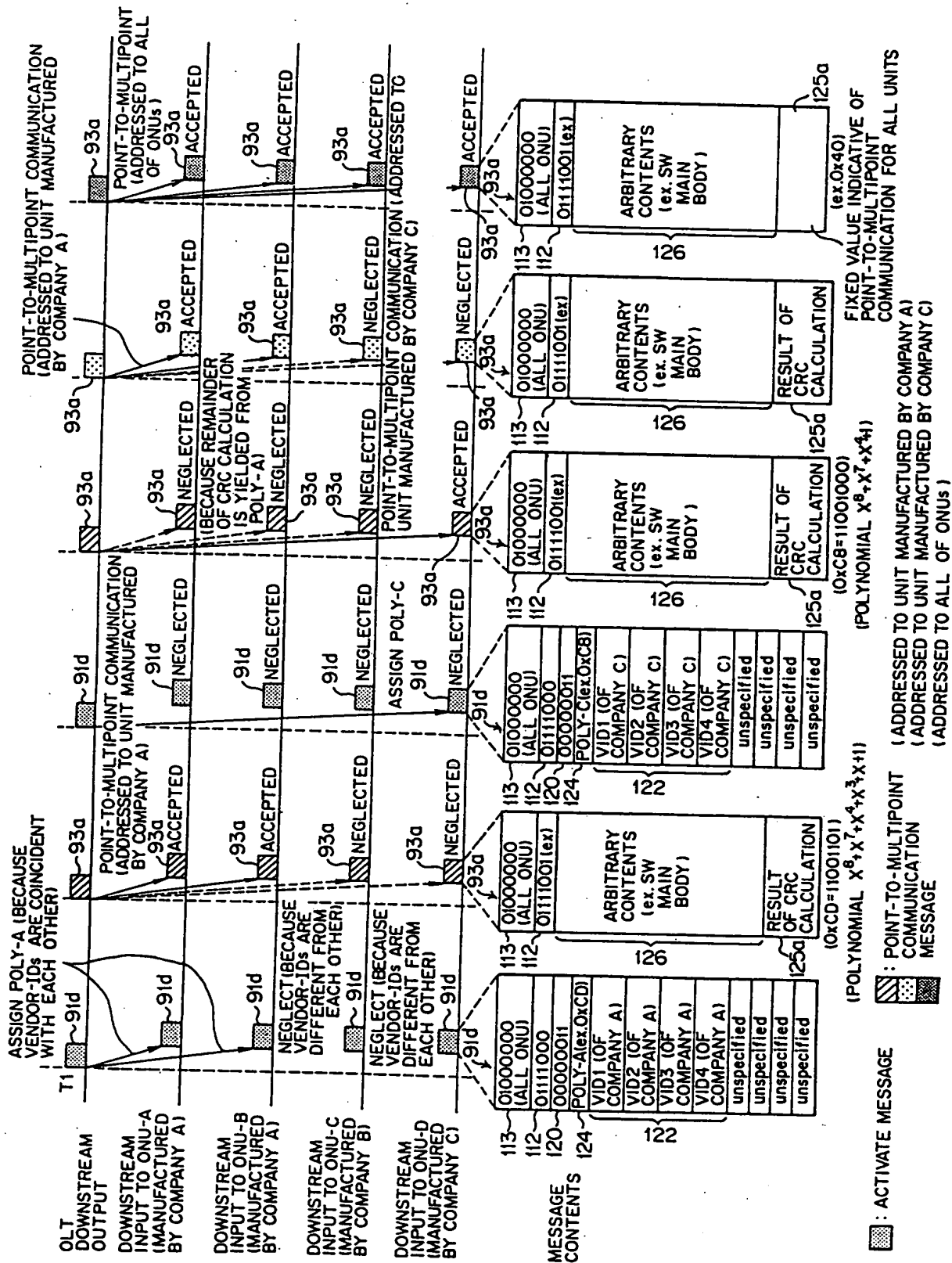


FIG. 58

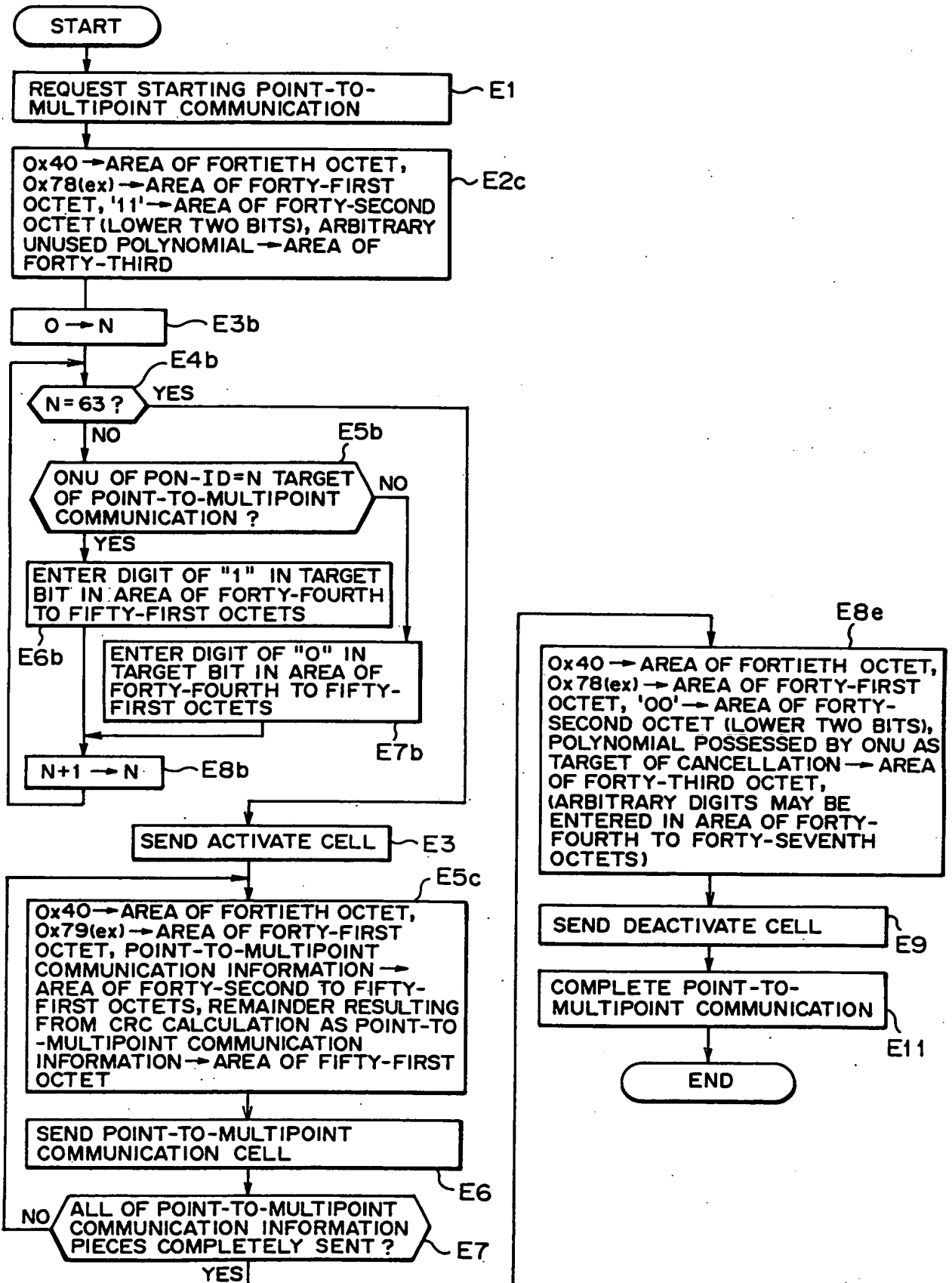
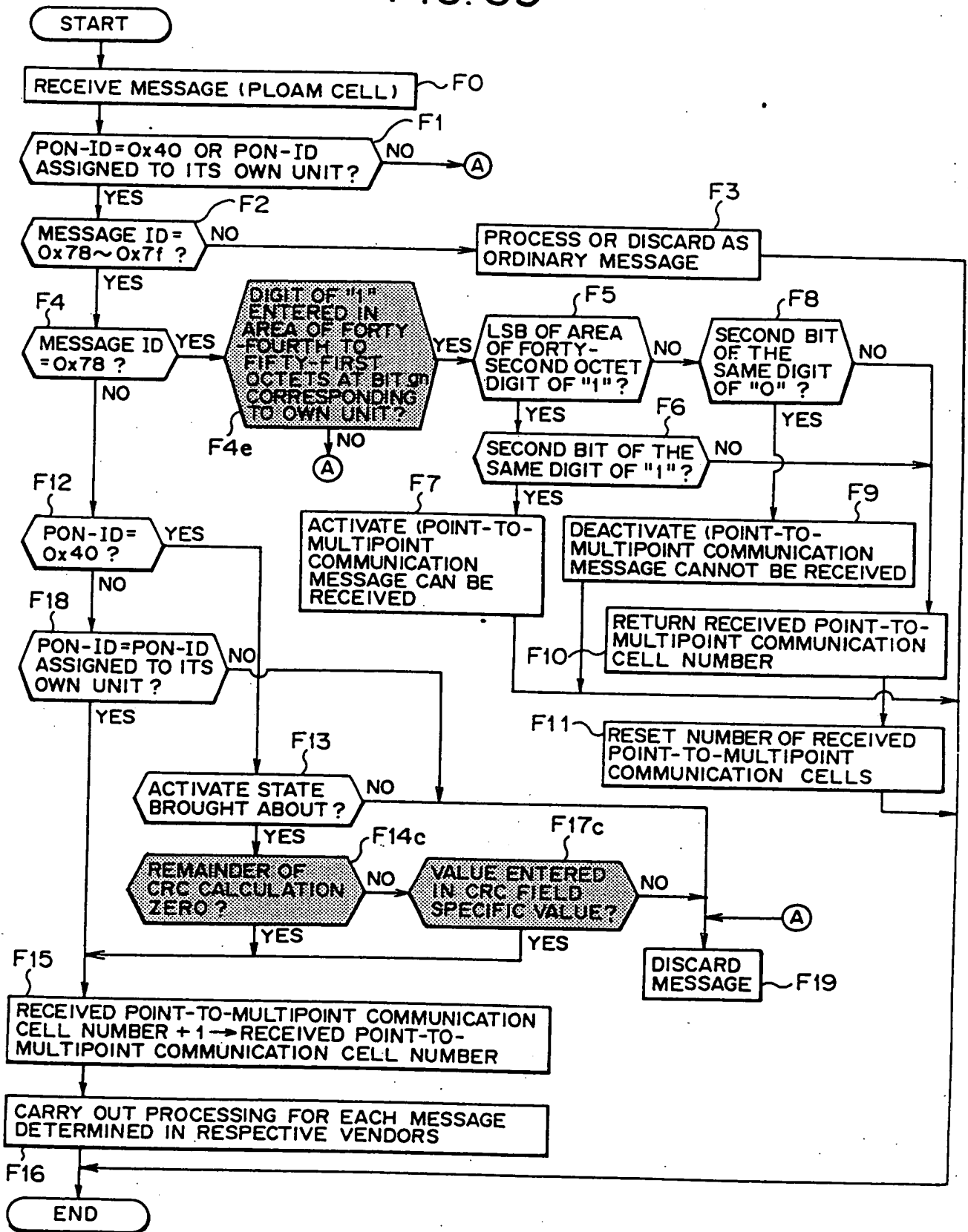


FIG. 58

FIG. 59



10034928.122001

FIG. 61

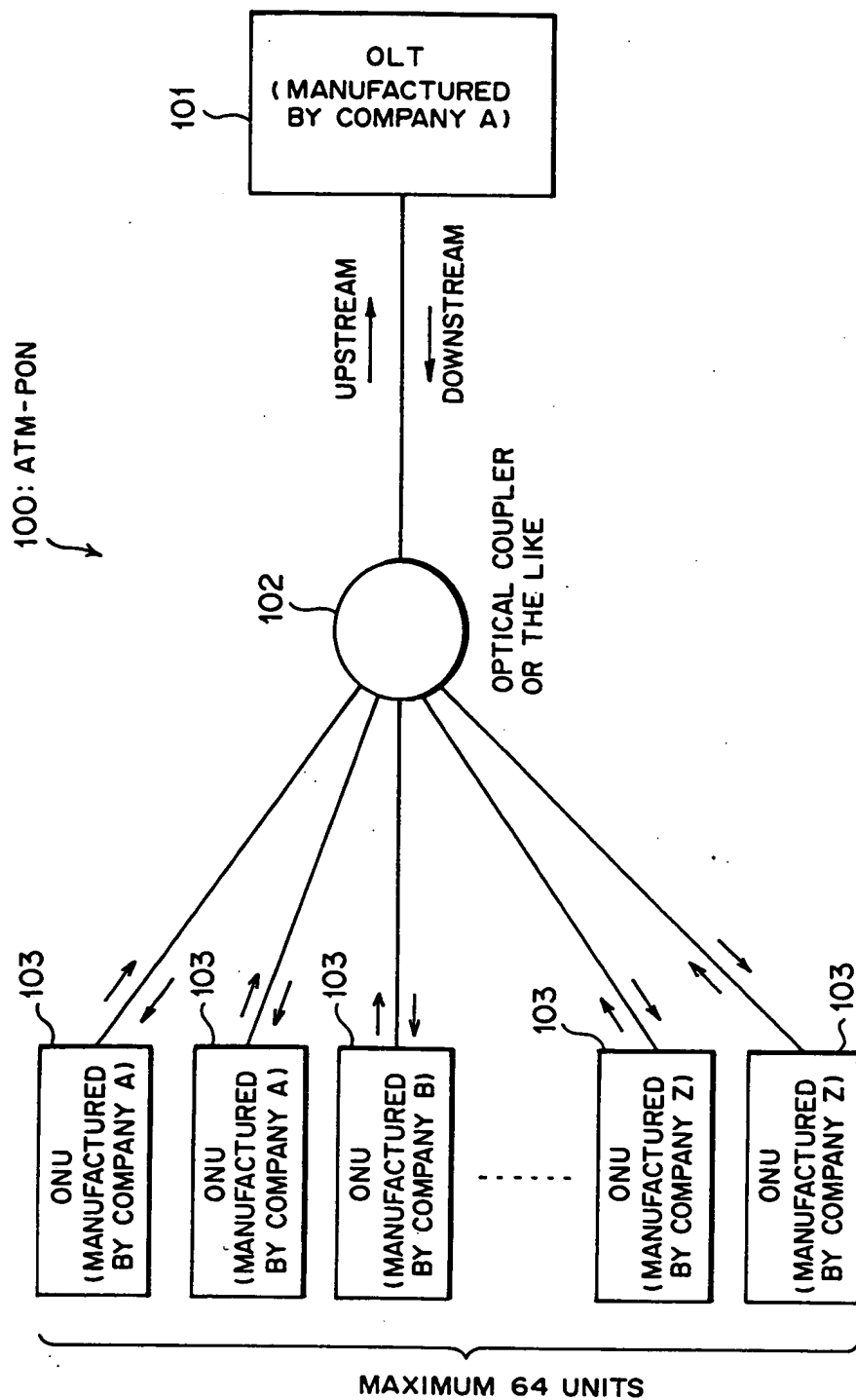


FIG. 62A

DOWNSTREAM MESSAGE

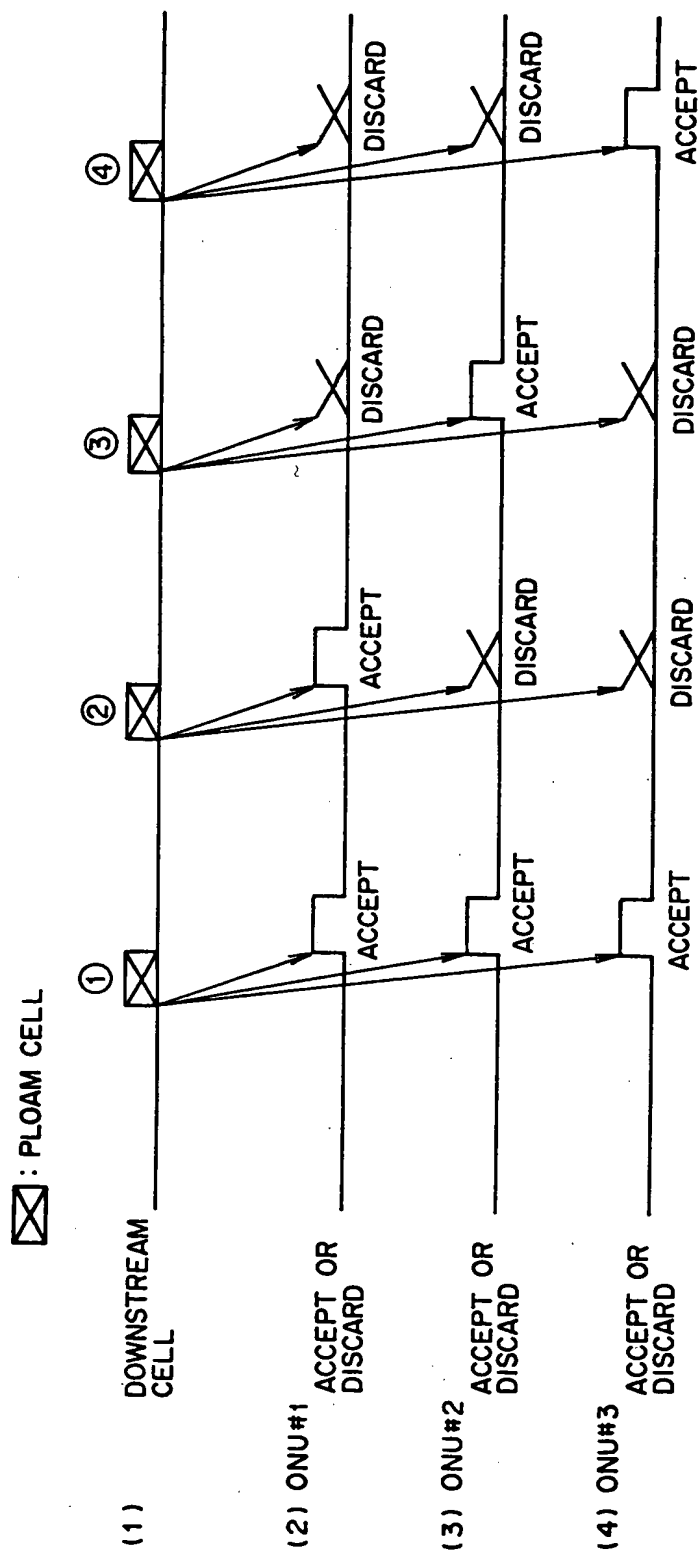
BYTE	CONTENTS	DETAIL
40	xxxxxxx	INDIVIDUAL PON ID OR BROADCAST TYPE PON ID=0x40
41	01111zzz	
42	yyyyyyyy	MESSAGE ID OF VENDOR SPECIFIC MESSAGE (LOWER THREE BIT MAY BE ARBITRARILY UTILIZED) 111: MESSAGE FIELD ALLOWED TO BE UTILIZED ARBITRARILY BY EACH VENDOR (TEN BYTES)
43	yyyyyyyy	
44	yyyyyyyy	
45	yyyyyyyy	
46	yyyyyyyy	
47	yyyyyyyy	
48	yyyyyyyy	
49	yyyyyyyy	
50	yyyyyyyy	
51	yyyyyyyy	

FIG. 62B

UPSTREAM MESSAGE

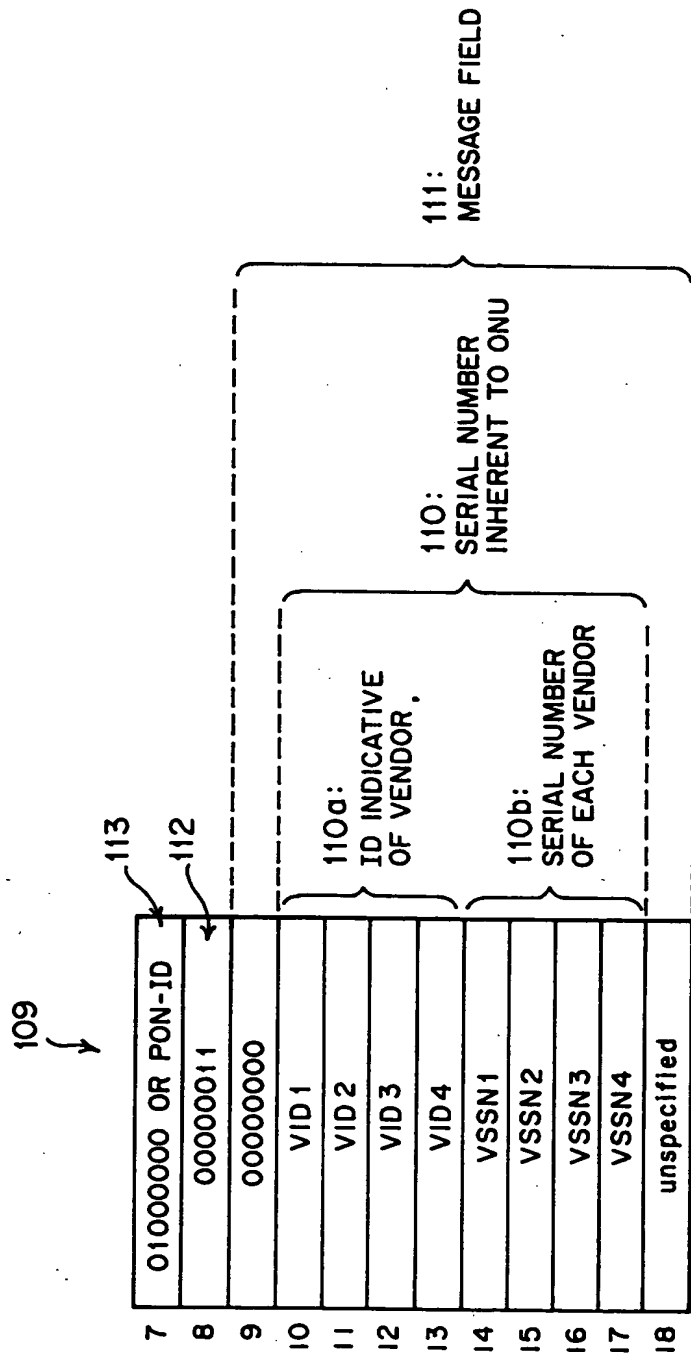
BYTE	CONTENTS	DETAIL
7	xxxxxxx	INDIVIDUAL PON ID
8	01111zzz	
9	yyyyyyyy	MESSAGE ID OF VENDOR SPECIFIC MESSAGE (LOWER THREE BITS MAY BE ARBITRARILY UTILIZED) 111: MESSAGE FIELD ALLOWED TO BE UTILIZED ARBITRARILY BY EACH VENDOR (TEN BYTES)
10	yyyyyyyy	
11	yyyyyyyy	
12	yyyyyyyy	
13	yyyyyyyy	
14	yyyyyyyy	
15	yyyyyyyy	
16	yyyyyyyy	
17	yyyyyyyy	
18	yyyyyyyy	

FIG. 63



- ① BROADCAST TYPE : ALL ONUs ACCEPT MESSAGE
- ② ADDRESSED TO ONU#1 : ONLY ONU#1 ACCEPTS MESSAGE
- ③ ADDRESSED TO ONU#2 : ONLY ONU#2 ACCEPTS MESSAGE
- ④ ADDRESSED TO ONU#3 : ONLY ONU#3 ACCEPTS MESSAGE

FIG. 64



SERIAL NUMBER ONU MESSAGE FORMAT (UPSTREAM)